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A. M. A. Session CHICAGO *June 12-16, 1944*

Symposium on Psychosomatic Medicine

The editorial policy of the *Medical Clinics of North America* is to bring to subscribers the new things in medicine *while they are still new.* Under such policy, it is only natural that a *Symposium on Psychosomatic Medicine* appear in these bimonthly books of new medicine.

The May Number from New York City, therefore, will feature a Symposium on Psychosomatic Medicine which includes the following 13 clinics: Clinical Description of Psychosomatic Medicine, Clinical Application of Psychosomatic Principles and Methods, Psychosomatic Factors in Disorders of Circulatory System, Neurocirculatory Asthenia Due to Small Heart, General Observations on Cardiospasm, Nonspecific Ulcerative Colitis as a Psychosomatic Disease, Emotional Factors in Young Children's Colds, Psychosomatic Factors in Stuttering, Physiologic and Psychologic Considerations of Delirium, Hypnosis in Medicine, Susceptibility to Accidents, Traumatic Neuroses, and Impairment in Emotional Control Produced Both by Lowering and Raising the Oxygen Pressure in the Atmosphere.

In addition to the Symposium, the May Number also contains three other full-length clinics of importance in modern practice. Subscribers will welcome this May Number as one of great and practical usefulness.

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SIXTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

REPORT OF CHAIRMAN OF COUNCIL ON INDUSTRIAL HEALTH, AMERICAN MEDICAL ASSOCIATION

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TEXARKANA, TEXAS

This is the Sixth Annual Congress sponsored by the Council on Industrial Health of the American Medical Association. These conferences represent one phase of the work of the Council. They have served, among other things, to provide a basis for wide appreciation of the enormous scope of industrial health. They have revealed the complex character and the contentious nature of some of the problems in this field. One fact which has emerged is not new to those who devote much time to industrial health problems. Conditions of work and their effect on health in every field of human activity eventually come within the scope of medical study and research. The problems of industrial health are not static. Science gives new knowledge. Medical concepts change and industry also changes, not only in its technics, but also in its attitudes.

The perfection of methods of treatment and prevention by physicians and hygienists and engineering specialists has, in the past, been followed by a lag in their utilization by practicing physicians who care for a large segment of the industrial population. The difficulties of establishing industrial health programs in small plants characterize the manner in which science has outstripped the advancement of social and professional organizations which would make possible the fullest utilization of our knowledge. This lag has been caused by several factors, one of the most important of which has been the extremely rapid development of industry. Another has been the failure of medical educators to train students, both undergraduates and graduates, in preventive medicine and public health activities and to assign to industrial medicine the place which its importance justifies.

The medical implications in our industrial expansion and the changes in the practice of medicine effected by workmen's compensation laws have not been adequately emphasized by our medical schools. Industrial hygiene has been widely taught as a relatively minor section of preventive medicine. Public health problems of medicine and surgery have been presented without any relation to prevention and control over exposure and only as examples happen to present themselves in clinics or wards. Industrial medical administration has been almost entirely ignored. The experience of a number of medical schools amply demonstrates that reasonable acquaintance with the subject can be provided at modest expense. The all important requirement for improved instruction is a unified plan which assigns over-all responsibility to one single teaching division, preferably preventive medicine and public health.

The interest of the Council in education in industrial health has been expressed by (1) the original report of its committee on scope, (2) the formation of a subcommittee on education, (3) articles on industrial medical education in the special industrial health issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, (4) instructions to state and county committees and (5) development of a syllabus for undergraduate and graduate teaching. The response of medical educators has been encouraging not only to the program of the Council but also to the efforts of the American Association of Industrial Physicians and Surgeons.

On previous occasions I have emphasized the essentially medical character of industrial health activities. At present, when medical and health plans centering about industry and when hospital relationships are matters of such serious concern, this basic principle, the essentially medical nature of health activities, should more than ever be subjected to discussion. Unfortunately, in discussions having to do with industrial health and medical care plans and with hospital organization the talk is around this point but the principle itself is never emphasized, nor is any constructive effort made to apply it. This principle is basic, and it is vital to the problems which are pressing for solution today. We spend much time in discussing medical relationships in hospitals and in analyzing medical features of various hospital plans and their effect on medical practice. Why is the fact not brought out that in the majority of hospitals in America today the medical staffs do not control the medical policies or in many instances know the names of the lay persons who decide the policies of the institutions in which they practice? The serious nature of this widely prevalent situation has not been headlined in the discussions of medicine's present difficulties.

This discussion of hospital problems is not beside the point here. The hospital has been a normal nucleus about which efforts for medical care have revolved. With the acceleration of all human effort during the war, the tremendous industrial expansion, the shifting

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of population, the limited number of physicians, the difficult problems of housing and sanitation and transportation and nutrition there has come as a matter of course a great impetus to the study of industrial health programs and of medical care plans. The interest which has been so stimulated has been productive of definite results in many industrial centers, and the development is continuing. In both the hospital and industry the physician is dealing with corporations. In both a third party is interested in certain phases of medical care. In industry the corporation has a legal obligation to assume certain medical responsibilities. In both the hospital and industry we have a growing interest in the expansion of health service on the part of the corporation. In the case of industry this interest is being augmented by labor organizations. In viewing industry we find that, in contrast to the hospital, we are dealing with a tangible organization where names are known and where, in most instances, the directing heads are residents of the communities in which the physician practices. The contacts necessary for the physician to organize health activities exist. It is recognized that other groups, business, labor, insurance, government as well as several nonmedical professional skills, have a real interest in the delivery of health service. It is our concern that the physician should be the central figure in the organization which delivers such service. The physician's place in such a program will be dependent on his own leadership, his place in his own community. The problem is essentially a home town problem. While we have perhaps become conditioned to look for master blueprints, we should remember that the minimum requirements for health services in industry have been defined and the principles involved are well known and well understood. The delivery of competent health service in industry demands that the position of the physician in the structure of industrial organization be clearly visualized and that his relationship to other interested skills should be clearly analyzed.

With the increased interest in medical care plans has come a discussion of the desirability of the organization, on a wide scale, of medical groups or clinics. The arguments favoring the extension of group or clinic practice need not be recounted here. The advantages offered by this type of practice are generally conceded, as is the need for making more generally available various diagnostic aids. This does not mean that the general practitioner must disappear or that the specialist should not have a broad knowledge of medicine which will enable him to do a good job at what has been dubbed recently as solo practice. Clinic or group practice has become so popular a phrase and has been so widely recommended, particularly by some industrial leaders, that it would seem a logical step to reexamine the fundamental professional relationships involved and the methods of business organization of clinics under the principles of medical ethics. The professional relationships and business relationships in groups and clinics are generally accepted as ethical and sound, but the basic principles of organization are not too well understood. A critical analysis of this type would be most helpful in clarifying the situation and in determining the desirability of accelerating the development of this type of medical entity on a broader scale.

The activities of the Council during the last year have been increased but have adhered essentially to the lines originally drawn. Since the inception of the Council, its members and others interested in its work have realized the necessity of developing relationships with trade associations, business organizations and other extraprofessional groups having a genuine interest in the health of workers. The vital concern of the worker himself has not been overlooked. Working contact with organized labor has not been easy to establish in spite of the obvious importance of the activities of the Council and the Association to various labor groups. It is significant that the likelihood of establishing some satisfactory contact and working arrangement with labor seems brighter now than it has at any time in the past six years. In the work of the Council during the past year, two reports should perhaps receive mention now. The first is the Report on Standing Orders for Nurses, which has been well received. The Council has recognized the important position of the nursing group in industrial health activities and has sponsored efforts to harmonize activities of physicians and industrial nurses.

The Council has also issued a report on Physical Examination in Industry. Physical examination will in all likelihood assume a place of unusual importance in coming months because of the necessity of reemployment of disabled persons. There are evidences that labor itself will restudy and probably reverse its stand in some instances on this important phase of industrial health. The contributions of a scientific nature which have been made by the various councils, bureaus and scientific sections of the American Medical Association are almost limitless, and these resources are at the service of those who are interested in industrial health programs.

This Council has stimulated in the various scientific sections the creation of committees on industrial health, and several have made noteworthy contributions. The activities of some of these special committees are reflected in the present program.

SUMMARY

1. The physician should be the central figure in health activities, whether in the field of clinical medicine, public health or preventive medicine.

2. The problems of medical service in this country are being solved in many areas by developments which center about industry and are essentially on a grass roots basis.

3. In a majority of hospitals in America the staff has no control over medical policies. The organization of many hospitals is obscure or so ill defined that medical staff organization cannot contact the lay individuals who control policies.

4. The organization of industry is such that it lends itself to a logical and ethically sound approach to the development of health programs.

5. Because of the widespread interest in this type of practice, the practical application of the principles of medical ethics to the professional and business relationships of medical groups or clinics should be restudied and clarified and defined.

CONQUEST OF TUBERCULOSIS IN INDUSTRY

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The control of tuberculosis in industry has now become a real possibility with the development and practical application of inexpensive mass radiography. Standard x-ray procedure with 14 by 17 inch films, unanimously considered the most accurate method for the detection of lesions characteristic of early pulmonary tuberculosis, has been too costly in material and personnel for use on a large scale. Cheaper and more widely applicable technics have long been needed and have finally been provided through the use of rapid film methods, 35 mm., 4 by 5 inch celluloid films and 14 by 17 inch paper films.

Extensive use of the small film technic by the armed forces has at last enabled x-ray examination to assume the role it deserves as a weapon in the fight against tuberculosis. Now the work must be extended on a grand scale among industrial workers and their families.

Tuberculosis strikes down the very ones who are most valuable as industrial workers—men and women between the ages of 20 and 45. Nearly one half (47 per cent) of all deaths from tuberculosis in this country during the period from 1939 to 1941 occurred among this age group. From early adulthood to age 35, tuberculosis is the leading cause of death. It is one of the first three causes of death at ages 15-49. For ages 20-34 one out of every six deaths among white persons and one out of every three deaths among nonwhite persons is due to tuberculosis.

The death rate from tuberculosis (all forms) for males is higher among residents of larger cities than among residents of cities of intermediate size, and that of the latter in turn is much higher than the rate for residents of rural areas. For females the variation of the death rate by size of city is almost negligible.

When workers are attacked by tuberculosis—recent surveys show that 1 per cent of our manpower is affected—they perform their jobs inefficiently, increase absenteeism and unwittingly spread sickness to others.

Although there has been no apparent increase in the amount of tuberculosis in this country as a whole since the beginning of the war, tuberculosis has formed a higher proportion of deaths from all causes in both urban and rural "critical areas" than in urban and rural "noncritical areas."

In these "critical areas" the unfavorable objective circumstances of overcrowding, insanitary living conditions and unusual fatigue are strikingly apparent. Tuberculosis control efforts should therefore be concentrated on these areas in order to forestall the expected rise in tuberculosis mortality as a result of the war.

The Public Health Service established a tuberculosis control office soon after war was declared for the express purpose of assisting state and local health departments in the development of tuberculosis control programs as a part of emergency health and sanitation activities. The principal objectives of this office are as follows:

1. Mass chest x-ray examination of workers in war industries and of families in war industry communities, in cooperation with state and local health departments and voluntary tuberculosis associations and local medical societies.

2. Development of workable procedures, in cooperation with the Selective Service System and the armed forces, by which cases of tuberculosis discovered among rejected recruits will be reported promptly to health departments for follow-up by family physicians and local chest clinics.

This includes technical assistance in the establishment and preliminary maintenance of simple and efficient medical records systems so essential for follow-up activities. The real worth of any case finding program must be measured in terms of completeness and adequacy of follow-up of newly discovered cases.

In order to demonstrate these new technics in mass radiography and at the same time actually to begin surveying large industrial groups, the Public Health Service procured eight transportable 35 mm. x-ray units and two 4 by 5 inch machines.

In assigning these units to state and local health departments, preference was given to requests for service to ship yards, ordnance plants, air depots and other essential war industries where workers can be examined on a mass basis. It is not profitable to use rapid film methods in small plants. Too much time is spent in setting up and dismantling equipment. In such instances local x-ray facilities that produce films of regular size can be used advantageously. Local tuberculosis associations can be very helpful in developing programs in the large number of small yet vital plants.

These small film units are lent to health departments for limited periods to demonstrate the need for such services, to train local personnel and to help local health departments and industries establish their own mass case finding programs. A limited number of small film units can still be purchased on the open market. In addition, satisfactory home made photofluorographs can be constructed locally at reasonable cost if x-ray transformers, control stands and tubes are available to complete the whole unit.

Each of the field units of the Public Health Service consists of a medical officer trained in interpreting small films, two technicians, a record clerk and complete equipment for exposing and processing several hundred films per day. Recently developed automatic roll film cameras operated synchronously with the x-ray exposure from a single control stand have greatly speeded up both exposures and development. Over 700 chest films can be obtained on a 100 foot roll of film. This entire roll can be processed in one single operation in a Stineman tank.

A significant contribution in mass radiography was made during the past year when Dr. Russell Morgan of the University of Chicago adapted his photoelectric timing mechanism or phototimer to 35 mm. photofluorography. The Morgan phototimer was given its first extensive trial with one of the Public Health Service field units in Washington, D. C. Over 50,000 films have been made with this phototimer equipped unit, and the results are remarkably consistent and eminently satisfactory.

This device greatly simplifies the whole technic of mass radiography. It is no longer necessary to measure

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or estimate the thickness of the chest of the individual to be examined. It is no longer necessary to set the milliamperage, kilovoltage or timer of the x-ray control stand. The controls are set at 200 milliamperes and 90 kilovolts at the beginning of the day's work; from then on the subjects are simply placed before the fluorescent screen of the machine one after the other. The technician merely closes the exposure switch and the phototimer does the rest, regardless of the size of the subject or the type of pathologic condition hidden within the chest. The photoelectric timing mechanism terminates the x-ray exposures at the instant the films have received the proper quantity of radiation to insure excellent chest films of uniform quality. This uniformity not only aids the diagnostic skill of the interpreters but also reduces fatigue when large numbers of films are examined.

Further developments in the speed of screens and film and image size of small films may be expected because of the great interest in and growing application of mass radiography to tuberculosis control.

The choice of small film equipment for a particular industrial health program must be based on careful consideration of the extent of the problem, funds available, personnel obtainable and specific objectives of the program in each proposed application. It is not possible at this time to discuss the relative diagnostic accuracy of different kinds of apparatus because of the lack of any comprehensive and definitive comparative studies on this subject in the medical literature up to the present. Such studies are now in progress and will be reported on in the near future. In our experience, all of these methods in the hands of competent and specially trained workers are effective in detecting early pulmonary lesions, with indications that the efficiency increases as one goes from 35 mm. up to 14 by 17 inch celluloid films.

Sound public health practice demands that the method used be one which benefits the largest number of persons in the industry or the community. When available funds are limited, it is of greater value to examine 100,000 persons with small films and miss a few minimal cases than to examine only one tenth of that number at about the same cost, using large celluloid films and leaving 90,000 persons without benefit of any x-ray examination whatever.

During the year and a half ended in December 1943 the field units of the Public Health Service have surveyed 117 industrial and other population groups in eleven states, the District of Columbia and Mexico City. A total of 559,306 individuals have been examined, of whom 5,648 showed x-ray evidence of significant reinfection tuberculosis. This constitutes 1 per cent of the persons examined. Of these 5,648 positive films, 62 per cent were minimal, 31 per cent moderately advanced and 7 per cent far advanced in extent. This distribution is of great interest in view of the fact that minimal cases comprise only 10 to 12 per cent of the tuberculosis case loads in the majority of communities.

Included in the surveys were two groups of particular interest. Over 110,000 government workers in Washington, D. C., were examined at the request of the District of Columbia Health Department. The prevalence of positive findings characteristic of reinfection tuberculosis varied from 0.7 per cent to 2.1 per cent, with an average rate of 1 per cent. These results are interesting when it is recalled that many of these persons are so-called white collar workers.

The other group consisted of Mexican laborers examined at the source of recruitment in Mexico, D. F., for the War Food Administration. Nearly 100,000 laborers have been examined to date. All those with abnormal x-ray findings were excluded from employment. As a result, many persons were prevented from bringing the disease unknowingly into the country and spreading it to those with whom they might come in contact. This service is still going on at the present time.

As pointed out previously, it is essential to examine all present employees and all new employees and to make periodic examinations at reasonable intervals of the entire working force of an industry in order to discover new cases as early as possible. Careful clinical study will then provide a sound medical basis for the immediate and ultimate disposition of each person suspected of having pulmonary tuberculosis.

Depending on the extent of the lesion, evidence or absence of activity and work capacity of the individual, definite placement plans can be made for continued employment under medical supervision or interruption of work because of the need for isolation or treatment.

Care must be exercised in the diagnosis and determination of activity of minimal lesions. Many employees have been penalized unnecessarily because of hasty conclusions drawn from the interpretation of a single flat plate of the chest. The more one sees of so-called minimal lesions on x-ray films, the more cautious one becomes in the interpretation of their significance. It has been found that competent readers often do not agree on the status of activity of a lesion on a particular film. It is also true that the same reader will not always agree with his first interpretation of a single film when reading it another time. The only safe rule to follow is careful clinical study, including examination by gastric lavage and tuberculin tests for differential diagnosis before definite diagnosis is made. It may be necessary also to wait three to six months for comparative clinical study before final diagnosis can be made.

An equitable labor policy must be established for those found to be tuberculous if the control program is to have permanent success. It has been found that health committees of labor unions are sympathetic to this type of health activity if they are informed of the full implications of the presence of a communicable disease in a fellow worker. A sick worker is a liability to himself, his family and his union, not to mention the industry and the community. When these facts are presented in their true light, rarely has there been difficulty in obtaining full cooperation.

If tuberculous workers are to be rehabilitated on a sound basis, industry and the community must accept the responsibility of providing both temporary and permanent sheltered employment for a certain number of workers. The English have demonstrated the effectiveness of practical measures such as the industrial colony, the training colony and the local workshop. This subject presents many difficulties, but these can be overcome if full use is made of our tremendous and varied resources.

Because tuberculosis is a social and economic as well as a medical problem, other groups besides the medical profession are sooner or later drawn into the picture. For this reason it is well to plan a program of cooperative enterprise right from the beginning. The local welfare agency, the voluntary tuberculosis association, management and labor are soon involved with

the health department and local physicians in the after-care and rehabilitation of tuberculous industrial workers and their families. It is much better to draw these other groups into partnership in the initial phases of the work than to come to them for help after they have been considered nonessential. Successful tuberculosis control requires careful long range, community wide planning.

The time has come for the public to accept the responsibility of providing financial security for the tuberculous worker and his family under any circumstances associated with the control of his disease. Overcrowded living conditions, poor home hygiene and fear of want during the absence of the bread winner from the house all contribute to failures of arrest of the disease in individual cases and play an important part in the continued spread of the disease.

A comprehensive scheme will be required to deal with these problems, developed in close cooperation with the medical services. Grants should be available to patients during treatment and during after-care and rehabilitation, in some cases for prolonged periods of invalidism, and if necessary for indefinite periods if permanent disability renders the individual unfit for work. Provision will need to be made for the proper care of children when the mother is removed from the house for treatment of her disease. Unless there is freedom from want and adequate maintenance without anxiety, the best medical care program for tuberculosis control in industry and in the community will be only partially successful and in the long run very costly.

Consider what the new case finding activities mean in terms of wartime tuberculosis control and ultimate eradication of the white plague. It is estimated that from 14 to 17 million persons aged 20 or more, or nearly 1 out of every 5 adults in the United States, have had chest x-ray examinations by the armed forces, health departments, industry and voluntary health agencies by the end of 1943. Therefore the case load of known tuberculosis has shown a significant increase. Ways and means must be found to furnish each patient with all the services successfully employed in the control of this disease. This will tax the ingenuity of those responsible for the care and supervision of this growing army of the tuberculous.

The Public Health Service will assist state and local health departments in the development of control programs by setting up standards based on careful research in public health methods, by offering consultation, by demonstration of new technics, by limited grants for follow-up facilities and by training much needed professional personnel. The state and local health departments will work in close cooperation with public and private industries and private physicians in the establishment of effective tuberculosis control activities as an integral part of the general industrial health program. State or county operated units can be used for joint operations in small industries. The industrial physicians and private physicians who supervise individual workers and their families will complete the medical team necessary to control tuberculosis in industry.

Here is an unequaled opportunity to do case finding and follow-up among fifty million important citizens and their families, persons among whom the major share of deaths from tuberculosis is occurring in this country. Our principal task now is to extend tuberculosis control activities so as to reach the greatest number of workers and their families in the shortest possible time, making full use of all private and public resources. With energetic and concerted action, the final eradication of tuberculosis from the United States is well within our grasp.

THE NEW MOVEMENT IN INDUSTRIAL SANITATION

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I. THE NEGLECTED SECTOR

Most of us do not consider dirt seriously. But we cannot avoid responsibility for sickness, accident and mortality, which stem directly from insanitary behavior. Responsible persons cannot, must not, dodge the issue. In an attempt to achieve high levels of plant cleanliness and orderliness consistent with progressive industrial operations, an exchange of information and an outright comparison of methodology are essential. Men and women of the caliber and authority represented at this meeting are eager and willing to investigate the technics of organization and ready to admit the discrepancies existing between the ideals for working conditions professed by management and the actual state of affairs that meet the eye and nose and touch, reflected in safety and medical records. But their superiors seem indifferent to the obvious failings of their service staffs or pitifully uninformed as to organizational methods. Janitorial staffs, where they exist at all, are utterly untrained and misdirected.

At the plant of one of the largest metal fabricators, where the avowed watchword is cleanliness, there is a staff of literally several thousand janitors working ineffectually with inadequate equipment and under ignorant supervision. In addition to this, the use of unsuitable disinfectants as an adjunct to actual cleaning is profuse and offensive. There is no regard for properly designed cleaning agents, nor have standard procedures been developed. Another large manufacturer, whose principal product is practically "allergic" to dust, has dealt with the problem only as it affects one department. Elsewhere there are ample evidences of bacterial breeding grounds and bacteria-transmitting dirt on poorly designed and neglected surfaces. Apparently the plant cafeteria is so foul that permission to visit it was pointedly sidetracked. Among other industrial leaders sanitation programs are ineffectually discharged because of a profound lack of information, failure to apply simple chemical principles, utter lack of standardization and a lack of administrative control over costs and operations.

The aforementioned plants represent the highest level of industrial leadership encountered. Improvement lies in efforts to use new building materials, new structural designs, up to date lighting and air conditioning, and in relating sanitation to morale and safety.

The second level of sanitation is represented by the service industry—hotels, restaurants, schools, railroads, hospitals, office buildings and the like. Although public pressure exerts some positive influences for the good where management fears bad publicity, the sanitation practices exhibited on this second level are frankly superficial.

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In the submarginal class, or third level of sanitation, one encounters all types of establishments. The common heritage of each is dust, waste, ignorance, lack of direction, and friction between employee and employer. It is no wonder that some of the greatest strides in plant improvement have resulted in part from the demands of organized labor. Apparently few other forces are potent enough to rouse management to action. At the same time it must be recognized that labor itself is directly responsible for the most insanitary conditions that exist in the manufacturing world, whether it is the careless fireman who permits his stack to belch forth volumes of sooty fly ash, the dishwasher who glosses over his important job, or the machine operator who permits oil, turnings and personal débris to penetrate or clutter the surfaces of his working area.

II. THE SCOPE OF INDUSTRIAL SANITATION

While safety, hygiene and industrial medicine all are interested in maintaining the worker's health and efficiency as productive factors in industrial operations, industrial sanitation safeguards and conserves human maintenance, protects and maintains the physical elements in the industrial scheme—the machines, the surfaces, the equipment and the products—from the destructive attrition of dirt.

How does it undertake this endless job? Simply by the elimination of dirt from industrial premises, by preventive means wherever possible and by corrective action wherever necessary. Cleaning isn't simply a soap and water attack. It comprises studying the surface to be cleaned, the character of the dirt on it, the chemical composition of the water available, the type of "soap" required and personnel. Cleaning is a complex series of physicochemical steps which must be regulated in proper sequence to insure effective results.

III. THE IMPORTANCE OF SANITATION IN INDUSTRY

Some thirty years of national interest in safety have provided us with important yardsticks to measure the seriousness of accidents. Today no plant executive can avoid the responsibilities for production and employee welfare which a safety program inspires. On the other hand, we know little of the costs and inefficiencies due to minor illnesses occasioning absenteeism. Illness last year cost us an estimated 400 million mandays of production! Respiratory ailments may originate in many instances from insanitary conditions, and especially from dust borne bacteria and viruses. Although there has been a conflict of opinion on the virulence of air borne organisms, there is convincing evidence that disease transmission from this source probably outnumbers all others on the industrial scene. Industrial sanitation eliminates dust by prevention or removal. Prevention often implies drastic architectural changes in building design and equipment operation. Removal implies a trained sanitation staff operating on a sound cost basis with proper scheduling and supervision. It implies the maintenance of painted and waxed sloping surfaces wherever possible—for example, on lockers, monitors, shroudings, ledges and window sills. It implies a careful study of illumination to reveal telltale films and deposits. It demands a vigorous research program in chemistry, microbiology, physics and engineering. It requires an administrative organization with adequate facilities and authority to make sanitation an essential part of production.

Occupational diseases have received wide attention because of their outstanding character and direct relation to working conditions. But minor respiratory diseases and food poisonings attributable to insanitary surroundings and personnel too frequently are neglected.

Food and beverage manufacturers have found it necessary to give constant attention to sanitation as a sort of insurance against product spoilage or because food and drug laws and health codes have demanded it. That they have been largely unsuccessful is due to the fact that there are few persons in the world today trained adequately for the responsibility of building an effective program which will fit into the production schedule and actually advance it.

Harassed managers find that repair and maintenance costs figure seriously in their budgets. If these would only be reduced substantially more capital could be diverted to expanding and improving plant facilities. A sanitation program which works to preserve machines, buildings and equipment can go far in realizing this goal. As yet we cannot estimate the "dirt tax" which we must pay because of abrasion, corrosion and biologic attack within our factories, but we know that it is astronomical! Some of this dirt tax is measured in the replacement of grit eroded surfaces or moisture and mold corroded buildings. Much of the hidden tax may be traced to ineffectual janitor service; it is estimated that there are about one million employees engaged in sanitation—a payroll of perhaps $40,000,000 per week!

Rodents and insects, both potential victims of proper sanitary practices, far outnumber our human population, eating and spoiling billions of dollars' worth of produce and manufactured goods each year. What they contribute in the way of disease defies estimation!

IV. A MODEL PROGRAM

The first move was to conceive an organized plan and to sell it to plant administrations. Fortunately, the head executives already were aggressive in their demands for sanitation. Without managerial support there would have been long delays in putting plans into execution.

Research and training are the accented factors. Under research may be listed laboratory investigations of ultraviolet disinfection, fungicidal paints, nonskid floor waxes, production belt cleaners, implement fibers, floor and wall materials—process cleaners for equipment to reduce weekly shutdowns for cleaning, mops, detergents, emulsifiers and wetting agents, insect and rodent exterminators and sprays.

The training of sanitation personnel goes hand in hand with research, because new materials and new implements combined with time and motion study necessitate a constant schooling for the janitors. Usually the janitorial staff comprises the flotsam and jetsam of the personnel—the failures, the pensioners, the physically unfit, the lowest wage earners are earmarked for the janitor staff. Occasionally, if an ambitious or a conscientious man comes into this group, his only thought is to be transferred to another department! There is need for an awakening to a sense of pride, awareness and responsibility in this group by progressive education. Next the simple chemistry and physics of cleaning are taught—a lesson in the scientific approach to the daily problem. Skills in dealing with characteristic surfaces are developed—glass, wood, rubber, leather, cement and metal. Implements and machines to ameliorate the arduous aspect of cleaning are introduced. Finally we fix responsibility between the janitors and production operators, so that a minimum of overlap occurs. We prove to the staff that they

are not industrial valets for the remainder of the personnel; we back them up in all reasonable complaints against chronic offenders in other departments. They are supervised by men with training in bacteriology, chemistry, engineering and foremanship, and these in turn are responsible to respective department heads, who are held accountable for clean environs. Coordinating each plant's program is a sanitation director responsible only to top management. He makes regular inspections, designs research and training, issues standard procedures and oversees the purchase, storage and dispensing of supplies.

Such a program may cost as high as $100,000 a year in a plant with 2,000 employees. Comparable sums, and even greater amounts in some instances, are being spent on our ordinary inefficient janitorial or clean-up departments without adequate return in health, safety and high production schedules.

Obviously each industry—each company—requires a specialized survey and service to determine its specific needs. This calls for trained personnel who can organize a program, educate every one from manager to office boy in sanitation principles and set the wheels in motion for a self-supporting unit. Unfortunately such men and women are not available today.

V. THE NEW MOVEMENT IN INDUSTRIAL SANITATION

There is at present a strong movement toward the recognition of industrial sanitation as a prime ingredient in industrial operations. A composite picture from an encouraging point of view of the plants visited includes these important features:

1. Responsibility for sanitary conditions delegated to full department heads.
2. Architectural designs for simple dust removal.
3. Precipitrons for dust elimination.
4. Use of lintless garments and rags.
5. Regular scheduling of cleaning in production departments.
6. Assignment of adequate sanitation personnel to large washrooms and production areas.
7. Issuance of instruction manuals for new employees.
8. Employment of chemists and supervisors expressly for sanitation programs.

These and other indexes are symptomatic of the forces at work to promote employee welfare through industrial sanitation. Unfortunately they are the exception rather than the rule.

The choice of accepting or rejecting industrial sanitation will not be left only to management. Millions of returning soldiers, men and women, trained and disciplined in personal hygiene and orderly group living will quietly insist on new found benefits.

Organized labor, always alert to improved working conditions, will marshal the gains of the war years as powerful bargaining points in its contracts.

Outside the factory gates we may anticipate acceleration in city planning. Injunctions against public nuisances—fumes, fly ash, noise, stream pollution—held in abeyance during the war years, will be prosecuted vigorously.

The building of war plants has been achieved on an architectural level unknown during World War I. The initiative of outstanding industrialists has espoused the cause of plant and employee sanitation. The "Better America" program of the National Association of Manufacturers embodies important standards of health and physical design in the world of production. Even the layman, turning the pages of his favorite periodical, cannot but be impressed with postwar promise of functional esthetics in the design of refrigerators, washers, kitchens and the like.

Where can we secure the technical information and necessary trained personnel? In Louisville a school for industrial sanitationists is being established, with curriculums founded on current research and applied through up to date methods of instruction. Textbooks of theory and practice will be made available to industry at large. An ambitious research program will provide basic and specific information through an independent *Journal of Industrial Sanitation.* The first National Congress of Industrial Sanitation will be held in Louisville within a few months and attendance of representatives from many of the major manufacturing industries has been assured. We must have the aid of the sanitary products industry in the study and application of more effective cleaning agents, more versatile equipment and advanced methodology. From architecture and engineering we seek new building design to exclude dirt.

We hope for adequate recognition and support from industrial hygiene so that it will redouble its efforts to relate individual health to environment in terms of sanitation in order that we may best determine our points of attack.

THE DETECTION AND TREATMENT OF NUTRITIONAL DEFICIENCY DISEASES

AMONG INDUSTRIAL WORKERS (A PROGRESS REPORT)

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The shortage of manpower has stimulated increased interest in the health and welfare of the industrial worker, with the result that never before have so many physicians, nutritionists and nurses directed their efforts toward the problems of nutrition in industry. Already much has been accomplished in initiating and improving inplant feeding of workers and in educating the worker and his family as to what constitutes a satisfactory diet.[1] The results to date are gratifying, but much is still to be done.

My interest in nutritional rehabilitation began when I was working at the University Hospitals in Cleveland in 1930. There, after carefully studying 278 patients with deficiency diseases, I noticed that 17 of them had the endemic type of the disease—that is, they developed their disease from ingesting an inadequate diet in contrast to other persons in our series who had predisposing or precipitating causes such as organic disease or chronic alcoholic addiction. After the 17 patients were discharged from the hospital we made frequent visits to their homes and they made frequent visits to the clinic. Most of them returned to work within a period of six months and were able to earn enough money to buy the diet we had recommended for themselves and

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The tremendously heavy expenses of the general nutrition study have been borne by grants from a number of philanthropic persons, foundations and commercial concerns, without which this study could not have been made. The necessary expense of frequent observations of these patients in their homes and in the clinic over a long period of time has been defrayed by grants from the John and Mary R. Markle Foundation and the Upjohn Company.

1. Food and Nutrition of Industrial Workers in Wartime, National Research Council, Reprint and Circular Series, number 110, Washington, D. C., April 1942. Goodhart, R. S.: The Nutrition of War Workers, J. Am. Dietet. A. **19**: 95-97 (Feb.) 1943. Planning Meals for Industrial Workers, United States Department of Agriculture, Food Distribution Administration, Nutrition and Food Conservation Branch, NFC-2, December 1943. Manual of Industrial Nutrition.[7]

their families. As a result, frequently whole families had improved health. This offered a special challenge to me, so I started seeking for persons debilitated by nutritional deficiency.

The results of the first aspect of this study have been published recently.[2] The present report might well be considered as a progress report of a problem which we have initiated toward the rehabilitation of 500 selected persons whom we believe we can restore to health. Already we have learned that when deficiency diseases occur in individual members of the family they are usually present to some degree in all members. Even the cats and dogs belonging to these families and eating scraps from the table frequently have deficiency diseases.[3] The data we have collected from these families and individual studies can be grouped as follows: those concerned with mortality rate, mixed deficiency diseases, the relationship of malnutrition to mental and nervous disorders, the effect of diet on mother and child, and rehabilitation through better nutrition.

An early and accurate diagnosis is the essence of successful treatment of nutritional deficiency diseases, and this can best be made by the interpretation of all the data obtained from accurate dietary surveys, medical histories, physical examination and laboratory determinations. No outline for collecting such data will suffice in all details for every patient, but we have found certain forms useful (figs. 1 and 2). Others, as well as some of the laboratory methods, I have already described.[4]

It is of primary importance to obtain a nutrition history when the patient is first seen, and if his diet is found to be inadequate I suspect nutritional deficiencies even though he has no diagnostic lesions at the time he is examined. Information in regard to income and food resources is often of some value in determining the adequacy of the individual diet. If the amount of money available for food is small and if the patient has no food resources such as a garden, cow or chickens, it is almost certain that his diet has been inadequate. We have found that many families have a good dietary immediately after pay day but that it gradually tends to become poorer as the money diminishes. Insurance payments, illness and other factors which make demands on the income often seriously affect the quality of the dietary. Emotional factors likewise tend to affect the food intake, especially in women who worry over their children and household problems. In many instances we have known them to fail to eat a proper diet even when it was available. Women who are working outside their homes as well as taking care of their homes and families are especially prone to neglect their diets. Occasionally an inadequate food intake is the result of restrictions imposed by diets prescribed for therapeutic purposes. Such diets all too often fall far short of being adequate. Accordingly, we suggest the careful check of the food intake of all persons on therapeutic diets.

NAME _____ (LAST FIRST MIDDLE) RACE DATE

POST OFFICE ADDRESS—	DIRECTIONS TO HOUSE—	NEAREST BUS OR R.R. CONNECTIONS—
PRESENT HOUSE AND SURROUNDINGS	CHANGES WHICH LED TO NUTRITIONAL ILLNESS	CONGENITAL MALFORMATIONS IN FAMILY: (AS CLUB FEET, CLEFT PALATE, ETC.)
LOCATION	ECONOMIC	
TYPE HOUSE	EMOTIONAL	
NO. OF ROOMS NO. OF BEDS	FOLLOWED OTHER ILLNESS	WELFARE ASSISTANCE
OWNERSHIP	MEMBERS OF FAMILY WHO HAVE HAD:	AGENCIES DATES
UTILITIES ELECTRICITY GAS WATER	TUBERCULOSIS	
TYPE FUEL USED	CANCER	
GARDEN	SYPHILIS	
PIGS	DIABETES	
COWS	PELLAGRA	
CHICKENS	CHEILOSIS	
MAN'S FATHER'S OCCUPATION	MARRIAGE DATE	MENTAL ILLNESS IN FAMILY
WOMAN'S MOTHER'S OCCUPATION	PLACE	
WHERE SPENT CHILDHOOD	PREVIOUS MARRIAGE	FIRST REGULAR JOB AGE TYPE JOB
MAN	SPECIAL TRAINING MAN	MAN
WOMAN	WOMAN	WOMAN

DEATHS IN IMMEDIATE FAMILY

RELATIONSHIP	AGE AT TIME OF DEATH	CAUSE OF DEATH	LENGTH OF ILLNESS

MILITARY SERVICE NAME	BRANCH	DATES	CAUSE OF DISCHARGE

GENERAL COMMENTS

Fig. 1.—Form for recording data.

We search for patients with diseases which might interfere with utilization or absorption of nutrients or increase their requirements for them. Increased physical exercise, fever, diarrhea and infection all predispose to the development of deficiency diseases.

Observing the development of deficiency diseases in a group of persons, one notices in the beginning functional disturbances which arise from every part of the body and give a complex clinical picture composed of an almost infinite variety of symptoms which may have existed for months or years before characteristic lesions appear.

In taking the general medical history we are concerned particularly with the following symptoms, which,

2. Spies, T. D.: Nutritional Rehabilitation of One Hundred Selected Workers for Industry, J. A. M. A. **122**: 911-916 (July 31) 1943.
3. Spies, T. D., and Butt, H. R.: Vitamins and Avitaminosis, in Duncan, G. G.: Diseases of Metabolism, Philadelphia, W. B. Saunders Company, 1942, pp. 366-502.
4. Spies, T. D.: Diagnosis and Principles of Treatment of Dietary Deficiency Diseases, Texas State J. Med. **38**: 427-431 (Nov.) 1942; Principles of Diet in the Treatment of Disease, J. A. M. A. **122**: 497-502 (June 19) 1943.

although not diagnostic, suggest the possible development of a deficiency state: loss of weight and strength; headaches; dizziness; burning sensations of the skin on various parts of the body; roughness and dryness of the skin; burning of the eyes, blurring of vision, lacrimation, photophobia and night blindness; burning and cramping of the stomach; burning of the tongue and lips; redness, swelling and ulcerations of the tongue and mucous membranes of the mouth; increased salivation; diarrhea; burning and cramping of the feet and legs. Central nervous system disturbances, which include insomnia, general nervousness, loss of memory, apprehension and hypersensitive emotional reactions, are common symptoms which may appear early in the development of a deficiency state. Unless prophylactic measures are taken, these symptoms tend to come and go and with each recurrence become more severe until petechiae or subperiosteal hemorrhages. Once a correct diagnosis is made, therapy is directed along the following lines:

1. A liberal amount of a well balanced diet, which should supply daily 120 to 150 Gm. of protein, 3,000 to 4,000 calories and liberal amounts of minerals and vitamins.
2. Symptomatic treatment and treatment of coexisting diseases.
3. The removal, whenever possible, of conditions causing excessive requirements for nutrients.
4. The administration of therapeutic substances in sufficient amounts to correct the deficiency.

In treating thiamine, niacin, riboflavin and ascorbic acid deficiency, we give daily a basic formula containing 10 mg. of thiamine, 50 mg. of niacin, 5 mg. of riboflavin and 75 mg. of ascorbic acid. In the presence of a predominating deficiency we add more of the vitamin

NAME	SEX	DATE OF BIRTH	PLACE OF BIRTH	BREAST OR BOTTLE	PRESENT OCCUP. OR SCHOOL	EDUCATION	COND. OF TEETH (DATES)	CLINIC PATIENT	CLINICAL DEF. DISEASES	SICKER IN SUMMER OR WINTER	SUSCEPTIBLE TO INFEC.	FOOD CAN'T EAT	CHILDHOOD DISEASES	USER OF FOLLOWING (DATES) TOBACCO	SNUFF	INTOXICANT	PHYSICAL HANDICAP
MAN																	
WOMAN																	
SINGLE CHILDREN AT HOME																	
OTHERS IN HOUSEHOLD																	

EMPLOYMENT HISTORY: DATES								HEALTH								
NAME	FROM	TO	EMPLOYERS	KIND OF WORK	DUST, FUMES, ETC.	SALARY	WHY QUIT JOB	EYES	STOMACH	SKIN	HEAD	LIMBS	APPENDAGES	MOUTH	MISC.	ILLNESS

Fig. 2.—Form for recording further observations.

definite clinical evidence of one or more deficiencies appears.

We suspect nutritional deficiencies in the following groups:

1. Those who for any reason have a food intake below that recommended for an adequate diet.
2. Persons who are chronically addicted to alcohol.
3. Those who have an organic disease which might interfere with the absorption or utilization of food or increase food requirements.
4. Persons whose physical exercise is increased but whose diet is of borderline adequacy.

I make a diagnosis of vitamin deficiency diseases, however, only in the presence of one or more characteristic lesions. For example, I diagnose pellagra only in the presence of characteristic oral or mucous membrane lesions; beriberi only in the presence of beriberi heart or nutritional neuritis; riboflavin deficiency only in the presence of cheilosis or typical ocular lesions; scurvy only in the presence of characteristic gum lesions, specific for that deficiency. In the case of thiamine deficiency 10 mg. of thiamine is added daily, in riboflavin deficiency 5 mg. of riboflavin twice a day, in scurvy 100 mg. of ascorbic acid three times a day and in mild pellagra 50 mg. of niacin amide three times a day. If the pellagra is severe the patient is given 150 mg. of niacin amide three times a day in addition to the basic formula.

When a patient is moribund from nutritive failure or there is interference with the absorption of nutrients from the intestinal tract, it may be necessary to administer the vitamins parenterally. When large amounts of *d*-glucose are injected daily, we recommend the inclusion of 20 mg. of niacin amide, 5 mg. of thiamine and 7.5 mg. of riboflavin, and in some instances we have found it desirable to inject 50 mg. of ascorbic acid in a sterile isotonic solution of sodium chloride.

Dried brewers' yeast powder and liver extract are excellent therapeutic agents for the treatment of diseases arising from B complex deficiencies. They are

natural sources of niacin amide, thiamine, riboflavin, pantothenic acid, choline, biotin, amino acids, enzymes, minerals and probably many as yet unknown nutritional factors. From 2 to 6 ounces of yeast or liver extract administered orally is effective. Liver extract can be injected parenterally.

The application of these recommendations is effective in the average case. There are, however, occasional cases which are complicated by so many predisposing factors that highly individualized therapy must be applied. This is illustrated by the 3 following case histories. Case 1 illustrates how accurate diagnosis followed by specific therapy relieved dietary deficiencies in dependents of a skilled workman, thus enabling him to return to his work as a mechanic. Case 2 is illustrative of a man who had always had an excellent diet but who developed deficiency diseases as a result of poor absorption from the alimentary tract and eventually became so ill he could not work. Parenteral injections of the needed nutrients enabled this man to continue his work in a steel mill. Case 3 is that of a man who had eaten a poor diet most of his life and for many years had symptoms which could not be diagnosed as a dietary deficiency disease. When, by means of intensive and controlled studies, it was established that three distinct syndromes existed simultaneously, we were able to apply satisfactory treatment with the result that he now is in excellent health and holds a good position.

CASE 1.—This illustrates how proper treatment of deficiency diseases in a mother and infant allowed the father, a skilled mechanic, to return to work.

C. B., a white boy aged 10 months, was brought to the Nutrition Clinic of the Hillman Hospital, Birmingham, Ala., on July 21, 1943 by his father. The family consisted of Mr. B., aged 38, his 36 year old wife, a 5 year old child and the 10 month old baby. Mr. B. had graduated from high school and from a trade school and had been a skilled mechanic for many years. He had always had employment and a good income except

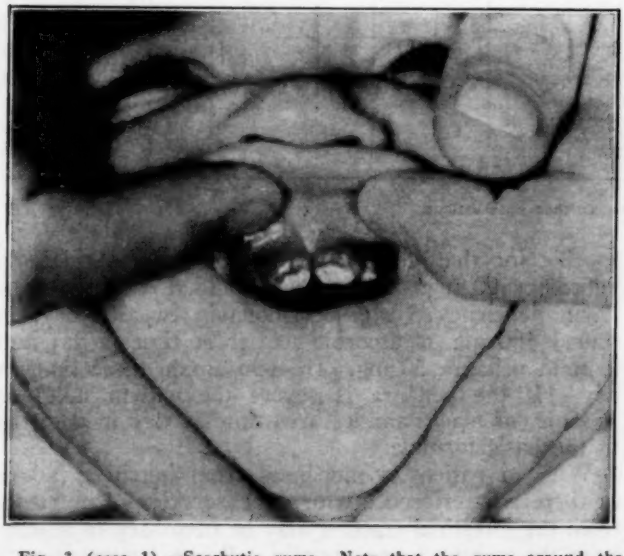

Fig. 3 (case 1).—Scorbutic gums. Note that the gums around the upper incisors are extremely swollen and coarse in texture. The swollen gum tissue almost covers the crowns of the incisors.

during the depression years, when he was unable to obtain regular work. During the depression he and his wife lived with his father, who was a tool maker and also was unable to obtain regular employment. From occasional earnings and by combining their savings, they were able to manage without asking for relief. At times, however, they did not have proper food, particularly Mrs. B., who worried so much about their financial problems that she frequently did not eat even when food was available. In 1938, following her first pregnancy, she became ill with diarrhea, a sore mouth and a sore tongue. This happened at a time when Mr. B. was working regularly again and had a good income, and a good diet was available, but Mrs. B.'s appetite was poor and she could eat but little.

Fig. 4 (case 1).—Appearance one week later. The baby received 100 mg. of ascorbic acid three times a day during this period. Note disappearance of the swelling of the gums. The crowns of the incisors now appear of normal length and the mucosa is healthy.

Since this time the diarrhea and sore mouth and tongue had recurred each spring, at which times she was so weak that it was necessary for her to stay in bed two or three weeks. The first child was breast fed for a year. He has always had a good appetite and has been in excellent health. Following the birth of the second child, Mrs. B.'s appetite remained poor, she did not regain her strength, and she had stayed in bed much of the time since the child was born. Frequently it had been necessary for Mr. B. to stay home to care for her and the two children, although his services were badly needed in the plant in which he worked.

C. B., the 10 month old child, was breast fed until he was 1 month old, when the mother's supply of milk became so scanty she weaned him and started him on a formula of evaporated milk, Karo syrup and water. Two weeks later she began giving him 6 drops of cod liver oil daily, and when he was 4 months old she added the juice of 1 orange, 1 tablespoon of strained vegetable, 1 tablespoon of cereal and the yolk of an egg each day. The child had a good appetite and took his food well until he was 5 months old, when he developed bronchitis, lost his appetite and became a feeding problem. He invariably refused the cod liver oil, orange juice, vegetable and egg yolk but usually took his formula and cereal. His mother made no attempt to keep him on a regular feeding schedule or to persuade him to take other foods but allowed him to have as much of his formula as he wished at any time he would take it. When he was 9 months old he began crying and fretting almost constantly and screamed when his mother tried to feed him. She noticed that his mouth was very red and sore, so she took him to a physician who prescribed a mouth wash, but his mouth and tongue became worse. About this time she noticed that he could no longer pull himself up into a sitting position in his crib or let himself down after she had pulled him up. She was so worried about the child that she could not eat or sleep and became too ill to take care of him. The father, who until this time had missed only an occasional day's work, now found it necessary to stay at home to take care of his wife and 2 children. For two weeks he consulted various physicians, but the child steadily became worse. Finally it was decided to bring the child to the hospital.

The child, who was well developed, was extremely irritable and constantly fretted and cried. His gums were purplish, bled easily and were extremely edematous, especially labial to the four upper incisors, which were almost covered with swollen mucosa (fig. 3). The lips were very red from the line of

closure to the mucobuccal fold. The inside surface of both upper and lower lips was very red, and there were many fine granules inside the upper lip. The soft palate was red and vascular. The tongue was fiery red along the sides and at the tip, and there was an ulcer 2 mm. in diameter on the under surface of the tongue at the midline. The long bones were so sensitive that even a light touch caused the child to scream. The remainder of the physical examination was negative.

Blood examination revealed 3.5 million red blood cells, hemoglobin 52 per cent, white blood cells 6,100 (polymorphonuclears 49 per cent, lymphocytes 45 per cent, eosinophils 3 per cent, monocytes 3 per cent). Repeated tourniquet tests were strongly positive. X-ray examination showed evidence of subperiosteal hemorrhages.

The child was given 100 mg. of ascorbic acid three times a day. By the third day the swelling of the gums had subsided to such an extent that the four upper incisors were clearly visible and the gums were less purple. By this time the child was taking the food prescribed for him and was much less irritable. He no longer fretted and cried or screamed when touched. On the fifth day all the swelling of the gums had disappeared and they appeared normal in color (fig. 4); the granules inside the lip had disappeared, as had the ulcer under the tongue. The pellagrous glossitis and the redness of the soft palate were still obvious. At this time he was given 50 mg. of niacin amide three times a day. By the ninth day all the oral lesions had disappeared, and he appeared perfectly normal and healthy. The niacin amide was discontinued on the tenth hospital day, and he was discharged on the following day. The mother was instructed in regard to his diet and told to continue the ascorbic acid for four days and then bring him to the clinic. When she brought him in, he appeared to be in excellent health. She said he had eaten all the food offered, slept well and seldom cried. The ascorbic acid was discontinued, and she was told to give him the juice of 1 orange and 3 tablespoons of tomato juice daily. Since this time the child has been brought to the clinic once a week for examination. He has had no recurrence of symptoms and at the present time is in excellent health.

In keeping with our usual policy of examining the entire family, we suggested that the mother come to the clinic. This was done the day after the baby was admitted to the hospital. The woman was extremely weak, nervous and apprehensive. Diagnostic pellagrous glossitis was obvious. Her condition was such that we decided to treat her in her home and to have her report triweekly to the clinic for observation. Accordingly, she was given 100 mg. of niacin amide four times a day and advised to eat a liberal and well balanced diet. On the third day after treatment was initiated the pellagrous glossitis had disappeared and likewise the diarrhea, which had persisted for over a month. By this time she was having no difficulty eating the food prescribed, and she felt so much better that she insisted on her husband returning to work. When the baby was discharged from the hospital, her health was such that she could take adequate care of both her children and her household.

Three days after the baby was admitted to the hospital Mr. B. returned to work, and he has not missed a day's work since that time.

CASE 2.—This illustrates the development of pellagra in a steel mill worker despite the fact that he always had eaten an adequate diet. After careful study had established the fact that his deficiency arose from failure of absorption of nutrients, we devised methods of therapy which enabled him to continue his work.

G. L., a steel mill worker aged 43, was referred by his physician to the Nutrition Clinic of the Hillman Hospital in March 1936 because of severe pellagrous glossitis, stomatitis and dermatitis. In keeping with our usual policy of treating nutritive failure, we initiated therapy promptly and began a thorough study of the patient and his family.

We learned that this man had been employed at the same steel mill for twenty-three years and was considered an unusually skilled and reliable workman. His income was adequate. He had a bank account and owned his home and a small amount of land. He raised rabbits and chickens and grew all the vegetables his family could use. The whole family, including Mr. L., had always eaten a good diet, and his wife and four children were in excellent health. The patient also had been in excellent health until about March 1, 1933, when his mouth and tongue became sore. At this time he refused to eat anything but soup and coffee, and his wife said she noticed that, in contrast to his usual cheerful self, he seemed irritable and acted peculiarly. He frequently stayed up all night but insisted on going to work the next day, though he often said he was "too tired to move." By the end of two weeks he had lost 10 pounds (4.5 Kg.) and his wife persuaded him to stop work. He immediately "took to his bed," and she gave him daily 1 quart of milk, 6 eggs, a large bowl of soup, ¼ pound of ground beef and 2 servings of cereal. After ten days on this diet and rest in bed, he was much better and went back to work. In spite of the fact that he continued to eat a good diet, he had six recurrences of sore mouth and tongue between 1933 and the time we saw him in the spring of 1936. Early in February of 1936 his mouth and tongue became worse than they ever before had been, and he noticed for the first time a "rash" on his forearms. He again went to bed but this time refused the food which his wife prepared for him. He was deeply depressed and said that he could not live. His wife became so alarmed over his condition that she called a physician, who referred him to the hospital.

He was admitted to the hospital on March 16, 1936. He was well developed though underweight, and was depressed, unresponsive and at times uncooperative. He was listless and could not concentrate. The skin over his body was dry, and he had bilateral pellagrous dermatitis extending from the wrist to the elbow on both forearms. The lesions were reddened and well demarcated from the surrounding skin. The tongue was fiery red and showed small ulcerations. The oral mucous membranes were reddened and swollen. He had generalized muscular weakness, tremors and nystagmus. The tendon reflexes were hyperactive, and vibratory sense over the ankles was absent. He had stocking type of light touch anesthesia. The remainder of the physical examination was negative.

Laboratory findings: the examination revealed the Beckh-Ellinger-Spies[5] test was strongly positive, red blood cell count 4.4 million, hemoglobin 85 per cent, white blood cell count 13,500. Gastric analysis showed no free hydrochloric acid even after histamine stimulation. Total acidity was 8 degrees. Barium enema and gastrointestinal series were negative on three examinations.

The patient was given a high protein, high vitamin 4,000 calory diet supplemented with 3 ounces of dried brewers' yeast powder daily. Every detail of his food intake was carefully supervised by the dietitians and nurses. For the first two days he had difficulty in taking the food and yeast but was persuaded to take all of both. By the third day improvement was under way, his desire for food had returned, the glossitis and stomatitis were less pronounced, and the dermatitis had begun to fade. He gained 12 pounds (5.4 Kg.) and appeared to be in excellent health when discharged from the hospital twelve days after admission. Some of the most striking changes were that he was very cooperative, could think clearly and was extremely grateful for his improved health. Both he and his wife were told that he must eat each day a diet which included 1 quart of milk, 4 eggs, ½ pound of lean meat, 2 servings of fresh vegetables, 2 servings of fresh fruit, 6 slices of whole wheat bread, a large serving of cereal and 6 tablespoons of butter. In addition, he could eat any other foods he desired. He was told also that he must come to the clinic once a week for observation.

Mr. L. returned to work the day after his discharge from the hospital. According to his wife and children, he ate all the food prescribed and sometimes much more. For two weeks he felt fine; then the symptoms began to return slowly. We had frequently visited him in his home and examined him in the clinic many times during this period, and we were reasonably certain that he had eaten the prescribed diet, which was more than adequate for normal requirements. Thus we were convinced that his disease arose either from failure to absorb or utilize food or from increased food requirements. Accord-

5. Beckh, W.; Ellinger, P., and Spies, T. D.: Porphyrinuria in Pellagra, Quart. J. Med. **6**: 305-319 (July) 1937.

ingly, it was decided to readmit him to the hospital for carefully controlled study to check this conviction. On May 1, 1936 he was admitted to the hospital, a thoroughly discouraged man but with the complete understanding that he would eat all the food we gave him. From the day of admission he was under the constant supervision of either myself or Dr. Austin B. Chinn, Miss Ann Van Blaricom, R.N., or Miss Jean Grant, dietitian. He was given a diet of 150 Gm. of lean beef, 4 eggs, 1 quart of milk, 200 Gm. of turnip greens, 100 Gm. of tomato, 200 Gm. of potato, 40 Gm. of blackeyed peas (dry weight), 150 Gm. of orange, 100 Gm. of prunes, 180 Gm. of whole wheat bread, 30 Gm. of oatmeal (dry weight), 90 Gm. of butter and 60 Gm. of sugar. This diet, which was weighed and prepared by a dietitian, remained constant for three weeks. The nurse always served his meals, remained with him while he ate them and carefully checked his food intake. We were certain that he ate all the food offered every day. While on this diet he developed mild but definite pellagrous glossitis and stomatitis and lost 8 pounds (3.6 Kg.). With the exception of frequent positive B. E. S. tests, the laboratory findings were negative, as they had been during the previous period of hospitalization. His condition had become so much worse that at the beginning of the fourth week he was given 3 ounces of dried brewers' yeast powder and an injection of 10 cc. of liver extract daily. Within forty-eight hours he felt better, and within seventy-two hours his mouth was normal. This therapy was continued for a week. At the end of this time he had gained 7 pounds (3.2 Kg.) and felt that he had regained his strength. He was discharged from the hospital and returned to work the following day. Throughout 1936 and 1937 he ate an excellent diet supplemented with 3 ounces of dried brewers' yeast powder daily. Despite this he had eight recurrences of pellagrous glossitis and stomatitis. With each relapse his symptoms were more severe and a cure more difficult to effect. Accordingly, it was decided that he was probably one of those rare persons who have absorption difficulties. Combined parenteral injections of niacin amide, thiamine and liver extract were initiated. Since this time he frequently has been given injections of riboflavin. He has received injections of the vitamins and liver extract at least once a month and has continued to eat an unusually high caloric diet. His health has been such that he has been able to work for the past five years, missing only four days when he had a severe cold. Despite the fact that these findings indicate that he can be kept at work, clinical judgment indicates that he is always bordering on relapse.

Case 3.—This is illustrative of a group of persons who have ill health and vague symptoms for a long period of time before a specific diagnosis can be made. After studying this patient for years, we were able to make an accurate diagnosis of three distinct deficiency disease syndromes acting simultaneously to interfere with his health and strength. Specific treatment persistently applied resulted in his being able to return to work. The case is so complicated that for ease of description we have condensed several hundred pages of notes on our laboratory and clinical observations, which have extended over seven years, and have divided them into nine interrelated parts.

1. J. T., a white man aged 48, had never had any serious illnesses prior to 1936 but had never been in good health. His mother had died of pellagra soon after his birth. Otherwise the family history was irrelevant. From the time he was 18 years of age he had worked intermittently in the coal mines. Frequently, however, he had not been well enough to do a full day's work, with the result that unless work was plentiful and miners scarce he often was unemployed. When seen by us in 1936 his wife and two children appeared to be in good health. They had always eaten a better diet than Mr. T., who, as long as he could remember, had been "finicky" about his food. His diet had consisted chiefly of cornmeal, molasses, potatoes, bread, spaghetti and occasionally beans, peas and eggs. He thoroughly disliked lean meat and liver and for this reason had never eaten them, and he had seldom eaten chicken or fish.

2. In 1936 a physician referred him to the Hillman Hospital for treatment. At this time his only complaints were weakness, burning of the stomach and dizzy spells. Following bed rest and a good diet, he improved and was discharged two weeks after admission. Although it was realized that his symptoms might have arisen from his poor diet, no specific diagnosis was made at this time.

3. After he returned home he resumed his old food habits and gradually lost weight and strength. The dizzy spells and burning of the stomach returned, and he developed diarrhea and a sore mouth and tongue. In November 1937 he was readmitted to the Hillman Hospital with severe bloody diarrhea. No parasites were found in the stools. Three gastrointestinal series, a barium enema and sigmoidoscopy were negative. The red blood count was 3.5 million, hemoglobin 70 per cent. The diarrhea ceased following the administration of paregoric. After two weeks in bed and on a good diet his strength returned. The dizziness, burning of the stomach and soreness of the mouth and tongue promptly disappeared. Again no specific diagnosis was made. He was discharged from the hospital and urged to eat a good diet at home.

4. During the following year and a half he was able to work very little and his diet remained poor. In June 1939 he was readmitted to the Hillman Hospital complaining of weakness, diarrhea, dizziness and burning of the mouth and tongue. It was obvious that he had a severe anemia. The average of ten red blood cell counts was 1.6 million and of ten hemoglobin determinations 48 per cent. The gastric juice on three examinations showed no free hydrochloric acid even after histamine injection. No parasites were found in the stools. A gastrointestinal series and barium enema were again negative. Although a diagnosis of addisonian pernicious anemia was seriously considered, our knowledge of his previous illness led us to believe that he probably had an extrinsic factor deficiency. Parenteral injection of liver extract was followed by a rise in the red blood cell count and hemoglobin, increased appetite and food intake, and disappearance of all his other symptoms. After two months on a good diet and liver extract, he was discharged much improved.

5. After he was discharged from the hospital he felt so much better that he did not bother to come back to the clinic for treatment and resumed his usual inadequate diet. In February 1940 he was readmitted to the Hillman Hospital with a recurrence of his former symptoms and, in addition, he complained of pains in all his muscles and numbness of the hands. He stated that he felt as if he was "perishing away." Examination showed severe pellagrous glossitis, stomatitis and pharyngitis. The strength in all the extremities was fairly good. Sensation was normal except in the right leg between the knee and ankle, which he said felt "dead." Vibratory sensation was poor in the ankles and normal in the upper extremities. There was moderate edema of the feet and ankles. Examination of the urine showed a positive Beckh-Ellinger-Spies[5] test and a content of nicotinic acid and thiamine much below normal. The stools were negative for parasites. The gastrointestinal series and barium enema were negative. Repeated gastric analyses showed an average of 27 degrees of free acid after histamine (this return of hydrochloric acid to the gastric juice, which was the result of treatment the previous year, is not an infrequent finding following therapy in this type of case). He was given a high caloric, high protein, high vitamin diet, 100 mg. of niacin amide, and 20 mg. of thiamine three times a day. The pellagrous glossitis, stomatitis and pharyngitis disappeared within two days, as did the edema; the pain in his muscles was relieved within a week. He was then given 5 cc. of liver extract intramuscularly every four days for four weeks. At the end of this time he had improved greatly. We wished him to remain in the hospital for further treatment, but he refused and was discharged.

6. After returning home he again refused to come to the clinic for observation and returned to his old diet. In July 1940, after having severe diarrhea for several weeks, he asked to be admitted to the hospital. The symptoms of nicotinic acid and thiamine deficiency and the laboratory tests for these deficiencies were essentially the same as they were at the time of his previous admission. He was so pale, it was obvious that he had severe anemia. His red blood count was 2 million, hemoglobin 60 per cent. X-ray examinations of the stomach and intestine were negative, and gastric analyses showed an average of 17 degrees of free hydrochloric acid. Bone marrow

studies showed typical megaloblasts with maturation arrest. By this time we believed that he had extrinsic factor deficiency and decided to test this hypothesis, since he was more cooperative than he had been and agreed to stay in the hospital this time until he was well. Accordingly, he was given a diet similar to the inadequate diet he had eaten at home and no

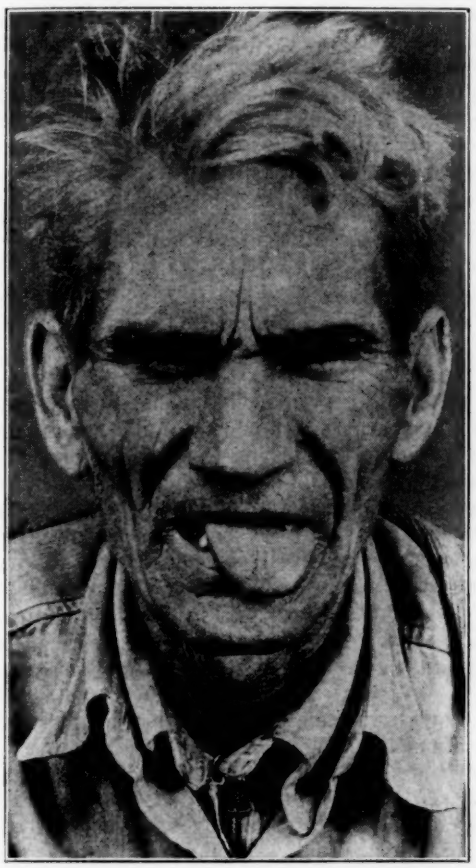

Fig. 5 (case 3).—Appearance of patient immediately after relief of pellagrous glossitis with niacin amide. Note that he is still emaciated, and his general appearance is to be contrasted with figure 6. Treatment for the macrocytic anemia was started the day this picture was taken.

medication was given to arrest the diarrhea. Each morning 75 cc. of gastric juice was taken from his stomach, incubated with 200 Gm. of ground raw beef and fed to a person with proved addisonian anemia in relapse. A typical rise in reticulocyte, hemoglobin and red blood cell count of the patient with addisonian anemia on the fifth day indicated that the gastric juice of J. T. contained the intrinsic factor of Castle.[6] J. T. was then given a high caloric diet, niacin amide and thiamine hydrochloride as on his previous admission. After a week on this therapy all symptoms of nicotinic acid and thiamine deficiency had disappeared but the blood findings had not changed. He was given 200 Gm. of ground raw beef daily for ten days. This produced a reticulocyte response and a subsequent rise in the red blood cell count and hemoglobin.

7. At this time the complete observations were reviewed by all the physicians who had taken care of the patient. It was unanimously agreed that the diagnosis of pellagra, thiamine deficiency and macrocytic anemia was justified. The fact that he had eaten a poor diet, especially deficient in animal proteins, over a period of years predisposed him to these diseases, but the diagnosis was made on the basis of our clinical and laboratory findings. Although pellagrous dermatitis was never seen, the diagnosis of pellagra was obvious from the appearance of the glossitis and stomatitis, which subsequently responded dramatically to the administration of nicotinic acid. The diagnosis of beriberi was made on the basis of nutritional polyneuritis occurring in a person who had a low thiamine intake for a long period of time. Excessive tenderness on pressure over the nerves disappeared six hours after thiamine was administered, and the tendon reflexes returned to normal after thiamine had been administered for a week. The diagnosis of macrocytic anemia was more difficult, but this diagnosis satisfied all the physicians concerned when all the following findings were considered: (*a*) macrocytic anemia with a high color index, (*b*) bone marrow smear showing typical megaloblast arrest, (*c*) chronic diarrhea, (*d*) repeated negative x-ray studies of the alimentary tract, (*e*) achlorhydria with return of free acid after treatment, (*f*) demonstration of the presence of the intrinsic factor of Castle in the gastric juice, (*g*) his response to ground raw beef without gastric juice and (*h*) characteristic hemopoietic response to parenteral liver extract.

8. After his last hospitalization the patient moved to a nearby town where he had found work in the mines. Although he had been unable to obtain regularly the diet we had prescribed, when he returned for examination in June 1941 his blood picture was normal and he felt well. We did not see him again until February 1942. At this time he told us that he had continued to eat a good diet and had felt well until September, when the mines closed. He had been unable to obtain work, and his diet became poorer than it ever had been. For four months he had seldom had anything but potatoes, spaghetti and bread. In December he developed very severe diarrhea. Within three weeks his mouth and tongue were so sore he could take but little food, and he had become so weak and had such severe pain in his legs that he was unable to get out of bed. Finally he asked a neighbor to bring him to the hospital

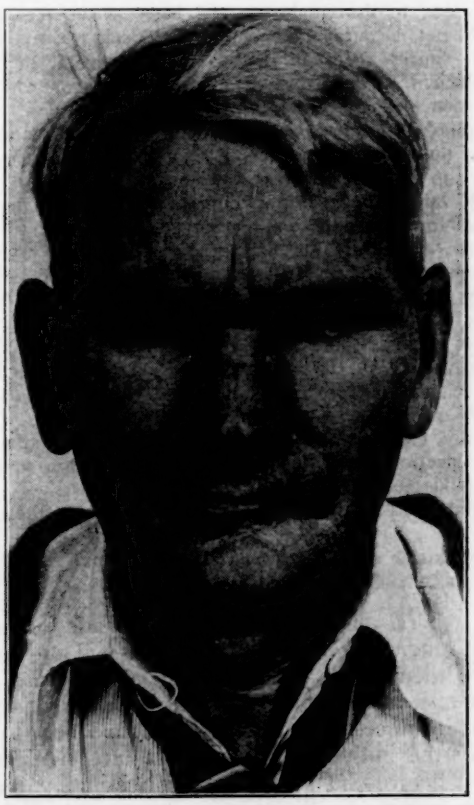

Fig. 6 (case 3).—Appearance at time of last discharge from hospital, showing a vigorous appearing man. He was entirely free from symptoms and was anxious to work. For full appreciation of changes this picture should be contrasted with figure 5.

for treatment, and he was readmitted to the Hillman Hospital in February 1942. The average of five red blood counts was 1.9 million and of five hemoglobin determinations 55 per cent. The glossitis and stomatitis and the burning and tenderness of the feet and legs were more severe than they had ever been. He was given an inadequate diet similar to the one he had

6. A detailed description of this method of testing for the intrinsic factor of Castle in the gastric juice of pellagrins is given by Spies, T. D.; Payne, W., and Chinn, A. B.: A Note on the Relationship of Pellagra to Pernicious Anemia, Proc. Soc. Exper. Biol. & Med. **32**: 328-330 (Nov.) 1934.

eaten at home, supplemented with 100 mg. of niacin amide and 20 mg. of thiamine three times a day until all symptoms of pellagra and beriberi had disappeared. Even though he had previously had a good hematologic response when he was given 200 Gm. of ground raw beef daily, we wished to test further his ability to absorb from the intestinal tract. Accordingly, he was given 3 teaspoons of a preparation of liver extract twice a day. The reticulocyte count rose from 0.4 to 12.8 per cent, and this was followed by a characteristic rise in the red blood cell count and hemoglobin. He was then given a high caloric, high protein, high vitamin diet. His appetite became enormous. He ate daily from 7,000 to 9,000 calories. His weight increased from 113 to 161 pounds (from 51 to 73 Kg., figs. 5 and 6). After four months in the hospital he was discharged and returned to work.

9. Since his last discharge from the hospital he has returned to the clinic regularly for observation. When we last saw him his red blood cell count was 5 million and hemoglobin 105 per cent. He is working in a dairy making enough money to support his wife and family, and they are all eating a good diet. He volunteered that he has learned his lesson and will continue to follow our instructions in regard to his diet.

COMMENTS ON THESE THREE CASES IN THE LIGHT OF THE USUAL RECOMMENDATIONS FOR INDUSTRIAL WORKERS

In the Manual of Industrial Nutrition [7] the following recommendations are made:

Each meal served within the plant should supply the worker with at least one third of his daily dietary requirements.

A la carte menus are wasteful of food, serve to increase the cost of food to the employees and increase the serving time. They do not encourage the employee to select a nutritionally complete lunch. Workers will complain more if their meals lack sufficient variety from day to day than they will over a limited choice of any one meal.

The midshift meal service should offer the worker a limited choice of nutritionally satisfactory lunches, with as much variety, from day to day, as possible.

A cold lunch can be as nutritionally adequate as a hot lunch.

Special lunches, emphasizing the use of alternate foods, can be offered at slightly lower than prevailing prices to increase their acceptability. At least one such lunch should be offered at every midshift meal period.

Foods used as alternates for rationed items should be true alternates and not substitutes. For example, cheese, fish, poultry, the variety meats and certain dried beans and legumes can be considered truly to be alternates, whereas spaghetti and macaroni cannot be so considered.

Milk and other protective foods might be offered at or below cost to encourage their consumption in preference to nonprotective foods such as pastry or soft drinks.

All white bread and white flour used should be of the enriched variety.

All margarine should be fortified with vitamin A.

Table salt should be iodized.

Any general plans which have been made for improving the nutritional status of workers will do much to improve their health. The industrial physician has a difficult task ahead. He has many sick persons to see. In most instances he is not given enough help to study carefully the individual patient, yet intensive study is required before the physician can justifiably diagnose nutritive failure.

It must be realized that nutritive therapy is not a panacea for all weak, listless but willing workers and that it requires careful study to select the persons whose complaints arise solely from nutritional deficiencies. The more accurate the diagnosis and the more persistent the therapy, the more certain is the physician to restore health to his patient and to enable him to work efficiently.

It is unfortunate that extravagant and unsupported claims for vitamins are the ones that are most widely advertised. It is also unfortunate that in the minds of many persons the use of various supplemental preparations conflicts with the aim of securing the best possible dietary. It goes without saying that an adequate dietary is of primary importance in maintaining health and in treating deficiency diseases. Nevertheless, in many cases a well selected diet does not assure adequate nutrition. Synthetic substances and concentrates are often helpful in shortening convalescence and in many cases may prove to be life saving.

SUMMARY AND CONCLUSIONS

1. The results of this study and of others that I have made or am making indicate that when endemic deficiency diseases occur in individual members of a family it is wise to study the family as a whole. The illness of the wage earner often results in a restriction of the family diet. Illness in the family frequently keeps the wage earner away from work so that he cannot earn enough money to buy proper food. Unpublished observations on many families indicate that their diets are often good immediately following pay day but tend to become poorer as the funds diminish. Insurance, illness and unexpected expenses seriously affect the quality of the food intake.

2. The very essence of our studies leads us to direct our efforts toward an early and accurate diagnosis and the application of the following general principles of therapy: a liberal amount of a well balanced diet, symptomatic treatment of coexisting diseases, removal of conditions causing excessive requirements for the essential nutrients and the judicious administration of adequate amounts of therapeutic substances such as dried brewers' yeast powder, liver extract and vitamins in the form of synthetic substances or concentrates or minerals.

3. Improvement in the health and nutritional status of many workers has resulted from the application of general plans such as the one described in this paper. Most persons advocating such plans, however, do not fully appreciate that meticulous clinical study is needed before a diagnosis of nutritional deficiency diseases is justified. Accordingly, I have discussed methods of diagnosis and therapy which are effective in the average case as well as cases in which benefit will not be obtained until highly individualized methods of diagnosis and therapy are instituted. The necessity of such specialized methods of therapy is illustrated by the 3 cases described. Case 1 illustrates how accurate diagnosis and specific therapy relieved dietary deficiency diseases in the wife and child of a skilled mechanic, thus enabling him to return to work. Case 2 illustrates the development of nutritional deficiencies due to lack of adequate absorption from the alimentary tract; parenteral injections of the needed nutrients are enabling the patient to continue his work in a steel mill. Case 3 illustrates the gradual development of deficiency diseases in a man who had eaten a poor diet all his life; intensive, controlled studies established that he had three distinct syndromes; proper therapy restored his health, and he is back at work.

4. These findings indicate that the shortage of man power can be combated to some extent by physicians, nutritionists and nurses directing their efforts toward the problems of nutrition in industry.

7. Manual of Industrial Nutrition, United States Department of Agriculture, Food Distribution Administration, Nutrition and Food Conservation Branch, June 1943.

A VISUAL SERVICE FOR SMALL MANUFACTURING PLANTS

AIMED AT THE PREVENTION OF BLINDNESS BY THE ELIMINATION OF INDUSTRIAL ACCIDENTS

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According to the best figures available, approximately 15 per cent of the blindness in the United States is the result of accidents, fully four fifths of which occur in the industries. Such industrial accidents may be due to poor vision on the part of the employee, to inadequate illumination so that visual hazards are not seen, or to the thousand and one other dangers.

This problem of blindness due to industrial accidents has never been approached in a methodical manner, although the majority of the larger industrial concerns maintain a medical and a safety department which is more or less efficient in this matter. However, in the smaller plants whose size precludes the maintenance of a medical staff or of a department of safety the visual hazards receive but little notice. Consequently the Illinois Society for the Prevention of Blindness deemed it a part of its duty to try to aid the smaller manufacturing plants in Illinois in the elimination of the various visual hazards that all too frequently lead to blindness.

Therefore a service was devised and is now in operation, a service primarily for the smaller manufacturing plants. By that is meant the plants with from a score up to 700 or 800 employees. This service operates in the following manner:

1. The management is contacted and given full details of the service and, if it is accepted, a contract is signed.

2. A "tester" contacts the various foremen and arranges a routing schedule whereby the employees are sent to the selected place in the plant on such a time schedule that there is a minimum interference with the normal operation of the plant.

3. At the appointed time the tester conducts a visual survey of each employee, using the new Bausch and Lomb orthorater. With this instrument is measured:

(*a*) The visual acuity of each eye for distance, without glasses.

(*b*) The visual acuity of each eye for distance with the employee's glasses.

(*c*) The visual acuity of the two eyes combined for near, without glasses.

(*d*) The visual acuity of the two eyes combined for near, with glasses.

(*e*) Muscle balance.

(*f*) Depth perception.

(*g*) Color sense.

This is all recorded on a special form on which is noted the employee's name, age, sex, occupation and department of the plant in which he works.

4. While the visual survey is being conducted, a trained safety engineer makes a survey of the entire plant, including the offices, in which is taken into account:

(*a*) The general illumination.

(*b*) The illumination of individual pieces of work.

(*c*) The illumination both by daylight and at night.

(*d*) The visual hazards that exist in each portion of every operation of the plant, from the standpoint of flying particles, dangerous obstructions, dust, and so on.

In this is considered not only the operator of every individual machine but also the safety of passers-by.

5. The report of the vision tester is then analyzed from a medical standpoint, department by department, and is submitted to the management. In that are recorded the names of the employees who require correction of visual defects, who have a manifest ocular disease, who have a pronounced imbalance of ocular muscles, who are deficient in color sense or who are deficient in depth perception. The urgent cases are starred.

The average time required per employee for this visual survey is eleven minutes; in the office force with higher intelligence, only about seven minutes is needed per individual, whereas in the laboring class, often with a deficient knowledge of English, up to eighteen minutes is necessary. In the medical report the management is urged to see that the employees who have visual deficiencies seek eye attention and undergo the necessary correction. The original plans for this service included refraction by a certificated ophthalmologist at the plant itself; but this had to be abandoned because of the shortage of eye physicians. Another proposed phase was to have a reputable optical concern fill those prescriptions, either for glasses or for protective goggles, at the plant. But here too the manpower shortage has necessitated abandonment of that part of the program.

Attached to the medical report is a list of members of the Chicago Ophthalmological Society who are not in military service. The management is urged to avail themselves of the services of any of the men who are therein listed.

6. The report of the safety engineer accompanies the medical report. In it are described the areas of insufficient illumination, together with recommendations as to the type of fixture and the wattage necessary to correct the defect. In it are described the various visual hazards from operations within the plant and the type of protection requisite to eliminate such hazards. Those may be in the nature of a machine guard, protective screen, goggles or whatever the exigencies of the situation may demand. These also are prepared department by department.

7. The society also offers the services of members of its staff to promulgate a safety campaign among the employees of the plant. That campaign is in the nature of posters, brochures on eye safety, moving pictures of industrial accidents and their consequences, first aid directions, and the like.

For these combined services the management pays the society $1 per employee. This, of course, does not cover the cost, and a special fund has been earmarked in the treasury of the society to carry this on as requisite. As time progresses the various plants will be visited again by members of the staff, and further endeavors will be made to see that the managements comply with the recommendations of both medical and engineering reports.

Although this service is new, it is believed that much will be accomplished in the prevention of blindness from industrial accidents.

58 East Washington Street.

Read before the Sixth Annual Congress on Industrial Health, Chicago, Feb. 15, 1944.

MEDICINE, LABOR AND INDUSTRY JOIN HANDS IN PHILADELPHIA

CHARLES-FRANCIS LONG, M.D.

Chairman, Commission on Industrial Health and Hygiene, Medical Society of the State of Pennsylvania

PHILADELPHIA

In a paper before the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association in New York in June 1940 I [1] projected the fields of activity for state and county medical society committees on industrial health. At that time I said "We aim to assure the best possible health to every worker in every industry within the state. This must be gradually approached by a coordinated program between the state and county committees and industrial organizations and labor groups." This presentation is an interim report. It details the methods used in Philadelphia to coordinate our program and describes the results.

It was apparent from the beginning that the medical profession would face an impossible task were it to handle the problem of medical service to small plants single handed. Consequently we worked on the philosophy that all parties in interest—management, labor and the medical profession—should rightfully participate in the establishment of such services. It was useless to begin with the major endeavor until we of the profession made certain preparations. We needed to know the size of the potential demand. We also needed to have an available supply of physicians who knew the rudiments of industrial health and were not already employed.

The Committee on Industrial Health of the Philadelphia County Medical Society promptly attacked these two phases. Under the able direction of the appropriate professors from the University of Pennsylvania and the Woman's Medical College a course in industrial health was established, meeting in the auditorium of the building of the Medical Society. The course consisted of forty-eight hours' instruction, was broad and introductory in scope, and had a number of extracurricular field trips for the students. It was open to any interested society member and to trained nurses accredited by an official organization. The tuition fee was $25. A certificate of graduation was awarded to all members of the course attending 75 per cent of the sessions. I am proud to report that sixty physicians attained these certificates.

Simultaneously we asked the Bureau of Industrial Hygiene, Pennsylvania State Department of Health, to conduct an industrial survey of Philadelphia County. We already knew that there were about 4,000 industrial establishments in that area but we did not know much more than that. The survey has been only 25 per cent completed, owing to the war, but we know what we know about 1,000 plants. We know their size, their product, whether they have a full time, part time or on call physician or no physician. We know whether they are equipped with a full time, part time or visiting nurse or with no nurse. We were not surprised to find most of the larger plants already adequately serviced or to see that plants of 500 or less employees were wofully ill equipped or completely lacked any medical service.

With our supply of physicians ready and our facts on the size of the need well in hand, we were ready to solicit the interest of labor and management. We found to our good fortune that the chamber of commerce and the board of trade of Philadelphia already had a health committee in existence. We were further fortunate in enlisting the active interest of this committee to such an extent that several of the members of the county medical society committee on industrial health were asked to become members of the chamber of commerce health committee. After several meetings of this "interlocking directorate" we began to see the path straight before us. Since 1,000 plants were already listed, it was obvious that only a portion of them could be successfully approached. Our first field then was limited to those plants in the list with 250 or more employees who were known to have inadequate or no medical service. These totaled 178 companies.

Two of the medical members of the chamber of commerce health committee were instructed to write a simple pamphlet in question and answer form, detailing the desirability of industrial health coverage in small plants, with its appeal directed to the management of those plants. This was reprinted in full in bulletin 18 from the Council on Industrial Health of the American Medical Association. It proved exceedingly useful as handout literature at our meetings with the individual plant managers.

While this work was in progress the chamber of commerce, through its executive committee, submitted our entire plan to the Central Labor Union Council in Philadelphia and succeeded in getting both A. F. of L. and C. I. O. endorsement to the project. Here was an asset of untold value. It at once allayed any possible suspicion on the part of a union local that their management was attempting something which might embarrass union members through fostering our plans in their work place.

As we progressed, we realized that one important detail had not yet been mapped out. No one had a clear conception of the exact procedure should the chamber of commerce health committee receive a request from a plant executive to help him establish an industrial health service. The routine of this procedure became the subject of several meetings of the committee on industrial health of the county medical society. The outline was then submitted to and thoroughly reviewed by the chamber of commerce health committee until finally a two page set of directions setting forth each consecutive step was adopted and since then has been followed successfully in our contacts with business men.

These directions are an attempt to bring uniformity into the actions of our various two man contact teams. They show the team how to approach the industrialist to win his interest in securing medical services in or out of a plant for the benefit of his employees. If satisfactory to the employer, they try to set up the medical service under the supervision of the physician who already is on call for accident work. If that physician has neither time nor inclination for assuming such responsibility, our representatives make it clear that he can take no umbrage if another physician is asked to do the work. A rough assay of the plant and its needs

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1. Long, C.-F.: Program for Industrial Health in State and County Medical Societies, J. A. M. A. **115**: 427 (Aug. 10) 1940.

is then drawn up and the manufacturer informed of the number of hours per week a physician should visit. Further recommendation is made that a nurse be engaged and that her hours be twice those of the physician. In the matter of fees, we have only authority to tell what has been the practice in other parts of the city and state, but the team insists that monetary arrangements be left to conference between the chosen physician and the industrialist.

At the moment our teams are all stressing the desirability of "inplant" medical service, because all our contacts are with employers of 250 or more individuals. As we progress to the medical servicing of smaller plants we shall have to turn to the several methods already outlined for us by the Commission on Industrial Health and Hygiene of our state society. Some of them will be applicable, some will not, but they are included here for the sake of completeness:

1. The general practitioner interested in industrial health is hired by management on an hourly basis. Our best example of this is the Lycoming County plan, where it has satisfied the needs of small industries in a number of instances.

2. A physician fills his time completely with hourly engagements in industrial health, thus becoming a full time industrial physician. To our knowledge there are only two physicians so occupied in Philadelphia.

3. A physician conducts a dispensary in a building housing several industries, supported on a subscription per capita basis. This type of service has been in effect for several years in one large industrial building in Philadelphia (the Fleisher Industrial Center).

4. The management of a factory building containing several industries contracts with a physician to supervise a dispensary in space set aside for the purpose by this management. This is a variation on the aforementioned plan.

5. A central dispensary is established in the neighborhood of a group of small industries and is run by a physician with the aid of a full time trained nurse. This idea is an amplification of an already existing technic. Many hospitals and a few insurance companies in Pennsylvania have already established industrial clinics, but so far they are all limited to the treatment of industrial accidents only. It will take a change in thinking and point of view to adapt these clinics to complete industrial health service, but at least the equipment and the personnel are already to hand!

Laying the foundations described so far consumed most of the spring and summer of 1943, but by early fall we felt ready to tackle the 178 industries selected from the list as our trial group. The president of the chamber of commerce sent out a series of three letters to each of the 178. The first two letters were attempts to arouse curiosity, then interest. The letters were spaced a week apart. The third letter was a definite invitation to meet with the members of the health committee at a stated time and date. Seventeen industries sent representatives. The meeting was held on an informal basis and took the form of a question and answer session. As a result of that meeting several industries asked for further attention, and each was visited by a team from the health committee consisting of a physician and a lay member. Since that time progress has been slow but steady. Requests for meetings with our two man teams have been received from 11 industries, and medical services have either been expanded or initiated in 7 of these industries.

We expect progress to continue at this slow pace for a time, but we think we see a factor that may give large impetus to an accelerated rate of demand for industrial physicians. That factor is the rehabilitation into industry of young men discharged from the Army for medical reasons or because of combat disabilities. All industrialists are sincerely anxious to place these men in their previous jobs or in suitable jobs rapidly. Some of them, inadequate for military duty, are still well able to perform the job they left in civilian industry. A large number must be remeasured for a job. This cannot be effectively done without the examination and advice of a physician who not only knows the man but knows the various job categories. We can proclaim this evident truth to industry, but from past experience we know that until they are really put into the middle of the rehabilitation problem the average group of industrialists will do nothing about it. The time is not far distant when rehabilitation of veterans will be the major concern of most industries, and we in Philadelphia feel that we have established in our chamber of commerce health committee a source of help to which our industries may turn to get their medical services properly set up.

When one considers that there were 178 prospects, the number of medical establishments successfully installed through our efforts looks pitifully small. We are in no way discouraged. We feel that our important accomplishment has been the development of a technic whereby medical industrial services can be installed in small plants whenever they are desired. We take real pride in the fact that this technic involves the active cooperation of management, labor and the medical profession. One member of the committee, following our first meeting with manufacturers, was depressed that only 17 responded and only 7 seemed interested. He disgustedly remarked "At this rate, getting adequate health service into Philadelphia's industry will take a lifetime." Our reaction is that by dint of hard work we hope the required time will be only that short. If, through our voluntary efforts, coupled with those of organized labor and industrial management, we can live to see health services established in Philadelphia's industries, our committee members can leave Sir Christopher Wren's epitaph to succeeding Philadelphia medical generations: "Si monumentum requiris, circumspice!" "If you are looking for our monument, look around you!"

1836 Delancey Street.

Occupational Diseases of Miners During the Middle Ages.—Throughout the entire medieval period there are no contributions to the subject of miners' diseases, and it is not until the 16th century that we find definite information relating to the occupational diseases of mine workers. Our knowledge of these diseases is based on the accounts of Paracelsus and Agricola. The former composed his monograph Von der Bergsucht und anderen Bergkrankheiten in 1533-34, while the latter's work, De re metallica, which contains the section on "the ailments and accidents of miners," was published in 1556. Although these descriptions refer only to the conditions present during the 16th century, it is more than likely that, to a greater or lesser extent, similar conditions prevailed during earlier centuries.—Rosen, George: The History of Miners' Diseases, New York, Schuman's, 1943.

PRESENT STATUS OF REHABILITATION IN THE UNITED STATES ARMY

BRIGADIER GENERAL FRED W. RANKIN
Chief Consultant in Surgery, U. S. Army
AND
MAJOR WALTER E. BARTON, M. C., A. U. S.
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WASHINGTON, D. C.

The preservation of the health of the soldier is the responsibility of the Medical Department of the Army. This role is vital to the efficient operation of a military machine, for a weak soldier cannot fight and an unhealthy army cannot do strong battle. Not only are we charged with the conservation and maintenance of health which will preserve the physical endurance and mental powers of our fighting men at a peak level required to assure combat superiority, but we are intimately concerned with all the factors that affect the soldier's well-being from the time he enters the Army until the day he leaves.

The importance and magnitude of these responsibilities are borne in on one when it is realized that the enormous expansion of our medical officer personnel has withdrawn about 40 per cent of the usable physicians of this country from civilian practice. It is a well known fact that we provide our soldiers with a chain of medical care from the forward echelons in the theaters of operation to the general hospitals here at home unsurpassed in any other military establishment in the world.

When a soldier is sick or wounded he must begin, as soon as his physical condition permits, a program which is directed toward returning him to a definite status, provided he is to be retained in the armed forces. This highly important mission of rehabilitation is concerned with both reconstructive surgery and physiologic reconditioning. It is instituted to effect the salvage of the maximum number of casualties and allow them to return to active duty, or at least to assume a happier and more useful place in society.

Rehabilitation in the Army falls into two major categories:

(*a*) The reconditioning of the soldier, convalescent from disease or injury, who is to return to duty, and

(*b*) Rehabilitation, medical, social and vocational, of the soldier who is unfit for further service because of disability.

Early in the war the Royal Air Forces in Britain found they were losing battle-seasoned men of proved courage by reason of lingering disabilities. Manpower shortages compelled interest in the convalescent patient in the hope of salvaging men for further service. Planned training of convalescents was highly successful. The U. S. Army in the European theater has established similar convalescent centers. The Army Air Forces have elaborated a Convalescent Training Program in all air station hospitals. Army service force station and general hospitals have also been instructed to organize convalescent training programs. All general hospitals in the United States and many station hospitals now have functioning reconditioning units.

There is nothing startlingly new or different in the concept of reconditioning. The medical profession has been aware of the importance of care during convalescence since antiquity, and the word convalescence is used by us today exactly as it was by the Romans two thousand years ago. Hippocrates, Galen and Celsus made reference to the regulation of diet and exercise for the patient recuperating from acute disease or injury, and in the 1860's Florence Nightingale in her "Notes on Hospitals" said "The first necessity of a convalescent hospital is that it shall not be like a hospital at all." This is the keynote of a reconditioning program.

Every war has intensified interest in convalescent reconditioning because of the need for getting soldiers back to duty as quickly as possible and also for the purpose of releasing hospital beds for newly wounded and sick. During the first world war the importance of physical and occupational therapy, work shops and educational and recreational programs for convalescents was high lighted. In England, through the labor unions, this definitely organized beginning was expanded. In the United States this was not the case. Nevertheless, in the special fields, as in orthopedics and neuropsychiatry, and in the treatment of tuberculous patients, the development of convalescent reconditioning has gone ahead.

It may be expected that the world conflict we are now in will intensify interest in all phases of treatment of convalescents. It can be assumed that the lessons learned in this treatment may open up medical interests of sufficient importance to make convalescent reconditioning and care an important part of the training of every physician. The program of this conditioning developed out of experience in Army hospitals may be expected also to leave its mark on civilian hospital practice after the war. Industrial accidents and disease affect the civilian patient in quite the same way as war injuries and sickness affect the soldier. Physical fitness and mental alertness will speed the return of the convalescent employee to his work and save many days of time lost from production.

In the Army the reconditioning program, which is the name given to the integrated activities of convalescent care, has as its primary objectives:

1. The return of more men to duty.
2. The return of soldiers in full physical and mental vigor in order that they may withstand the rigors of full duty.
3. The use of time spent in hospitals profitably to produce a physically fit and better informed and better oriented soldier. The constructive use of enforced leisure on a planned program of physical training and educational and recreational activities combats the flabbiness of body and of spirit that idleness and boredom of monotonous empty days spent in hospitals tend to engender.

Getting a man out of bed and back to active duty is not simply the task of treating him physically. His will also is involved. He must want to get well, and the desire to be active again must be nurtured, especially when such activity may be distasteful and unpleasant, as in the case of the soldier returning to battle.

The appeal to interests which awaken and promote mental activity works positively on the body also and tends to arouse the desire for physical activity necessary for recovery. Education, involving information and orientation which leads to reaffirmation of the purposes for which we fight, can and should be an important part of any program for reconditioning soldiers.

It is important to start the program of retraining at the earliest moment convalescence begins. The expectancy of restoration of health and further service is thereby fostered, guarding against oversolicitous sympathy and concern with disability by both patient and staff. For administrative convenience patients are classified into groups: class 4, the bed patient; class 3, the ambulant hospital patient; class 2, the patient no

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longer requiring active medical treatment, and class 1, those requiring final hardening for duty.

The convalescent patient, still in bed in class 4, in addition to physical therapy and other treatment procedures may begin bed exercises designed to prevent physical deterioration and promote gain in physical strength. Physical fitness preserved shortens the time required to regain full vigor. Occupational therapy projects may be brought to the bedside and interesting art and hobby work utilized to prevent morbid introspection. The portable movie projector, ward class and discussion groups have been employed to bring educational opportunity to the ward patients. Those who wish may enroll in the U. S. Armed Forces Institute and continue academic training. Movies, music and entertainment also are brought to the ward.

The ambulant hospital patient in class 3 will continue his special treatment and may attend the physical therapy department and its remedial exercise gymnasium. Function of damaged limbs may be improved by attendance at the occupational therapy shop. In addition, assigned work activities and physical training may strengthen muscles weakened by stay in bed, injury or inactivity. These patients can be assembled in groups for educational activities. Discussions of current events, battle strategy and general information about the war keep alive interest and desire to do their part. Military classes in first aid, camouflage, radio and communication and the like add to the knowledge of the soldier and restore combat skills. Recreation under the auspices of the American Red Cross and the Special Service Division provide current movies, music and entertainment as well as opportunity for active participation in games.

At the earliest possible moment, when the soldier is no longer in need of active medical treatment, he is ready to leave the hospital environment. He discards the maroon Army hospital suit and dons his military uniform. He leaves behind the name "patient" and becomes a "trainee" in the Reconditioning Section. In barracks, on the grounds of the hospital or in a detached camp nearby, class 2 patients undergo a planned course of physical fitness training by means of calisthenics, games and sports, work activities of a useful industrial nature, and the obstacle course designed to restore full strength. Activities are planned with a progression in keeping with returning strength. As the soldier becomes a class 1 trainee, military hikes, marches and drills are added and his fitness to return to duty is checked on scores made on physical fitness tests.

The educational program in the Reconditioning Section takes up fewer hours, for the time spent in physical training is increased. The subjects presented are of a military nature necessary in training. Recreation consists in a free choice of the many leisure time activities available and the greater freedom which passes off the post bring. Only those patients are sent to the Reconditioning Section who may be expected to return to duty. Patients awaiting discharge from the service because of incapacitating illness or disease must not be sent to this group. Similarly, nervous and mental patients are not sent because of the problems introduced by the man who is looking forward to discharge and home. The problem of morale involved is important. A special program of reconditioning of these two groups is carried out, but in wards of the hospital instead of in the reconditioning section.

No accurate figures of the results in saving of manpower are as yet available. One convalescent center overseas reports 89 per cent of its trainees returned to duty. General hospitals in this country dealing with evacuated patients with more serious disabilities are returning an estimated 50 per cent of their trainees to duty.

The chief concern of the Army in rehabilitation is with the period of convalescence and with the reconditioning of the soldier for further military duty. When a man is found to be unfit for further service and has reached the period of maximum hospital benefit, he must be discharged from the Army.

Contrary to some expressed popular opinion, the Army Medical Department is not a welfare organization. It cannot afford to turn its energies from the preservation of the fighting efficiency of the troops and the healing of the sick. There is much talk these days about the introduction of vocational training into hospitals. The complexities of the problem of restoring the soldier with or without a handicap to his job are such that other governmental agencies are properly charged with that responsibility. There is, however, a moral and social obligation to undertake the beginnings of retraining for social living in those individuals, unsuited for further military duty by reason of the handicap of disease or injury, who are still confined in an Army hospital. This responsibility for retraining terminates when the individual has received the maximum hospital benefit obtainable from medical and surgical procedures and when he may be safely discharged to his own care or to the Veterans Administration.

The blind servicemen represent a group requiring special rehabilitative measures. They are retained in two hospitals designated as rehabilitation centers for that purpose until the soldier has adjusted himself sufficiently well to the handicap of blindness to be able to care for himself and to get about easily, and until he has learned certain basic substitute skills designed to minimize his handicap. He is retained in the military service until he is capable of undertaking vocational training provided under the Veterans Administration's plan or until he is able to care for himself adequately at home, should he not desire or need additional job training.

The deaf are retained in three designated hospital rehabilitation services for those with impaired hearing until tests are made and hearing aids fitted to those who will secure benefit from them. Teachers instruct the men in the art of lip reading, and in six to eight weeks almost all become adequate lip readers. Speech correction teachers are on hand to prevent deterioration of speech.

The soldier who suffers an amputation goes to one of five designated hospitals. Amputees are retained in service until they have been fitted with a temporary artificial limb, if this is possible, and have learned how to use it properly. Six months after discharge a permanent artificial limb of the latest design may be secured from the Veterans Administration.

The Medical Department of the Army intends to supply the best medical and surgical care to all service personnel from the earliest possible time after injury until maximum hospital benefit has been obtained. The period of convalescence will be employed for mental and physical reconditioning in order that many may return to duty, some to combat overseas and others to service elsewhere in less vigorous duty where skills and abilities acquired during the long and arduous training and in combat may be used to advantage.

It is our hope and aim that those unfit for further military service will receive the attention required by their psychologic and emotional needs as well as by their physical needs in order that the wounds of spirit may also be healed. During hospitalization, efforts will be directed toward the development of self reliance and self sufficiency. Through the assistance of the American Red Cross, the United States Employment Service representatives and Veterans Administration workers, who are available for interviews at hospitals, servicemen will have an opportunity to discuss job placement or job training needs before they leave the service, and they will be discharged with information as to their rights, aware of veterans' benefits, and with knowledge as to where they may turn for assistance. Through operation of these services we hope that many may be enabled to continue to serve their country in industry at home.

VOCATIONAL TRAINING AND PLACEMENT OF THE VETERAN

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In considering the possible educational program of returning veterans there are certain facts concerning these veterans in general of which one should be cognizant. The men in our armed forces are among the healthiest and most normal of our American manhood. Their educational level is high. Fourteen per cent of the Army of World War II are college men; 53 per cent have some high school education, and of these almost half are graduates. Only a third of the group are on the grade school level—as compared with 80 per cent in the last war.

Not only are the service men of today initially better educated than those of any previous war, but liberal provision has been made for their continued education while in the service. In all previous wars the time of service was a period of mental stagnation. It represented a block taken out of life. This is not true of World War II. Education in the form of camp libraries, group study courses and Armed Forces Institute correspondence courses in which every major collegiate institution is participating is making learning continuous with the soldier's life interests. Educational planning and opportunity follow the men everywhere, into the heat of Africa and into the arctic nights of Iceland.

The men in the armed forces are young men. In 1943, 50 per cent of the men in the Army were under 25 years of age; 80 per cent were under 30. Consequently the great majority of veterans will still be in their twenties. At least a third will have had no vocational experience except that acquired in the armed forces, for they entered the Army directly from school. Only about 20 per cent were out of school more than three years before they were inducted. A majority, therefore, will have had, at the most, one or two short work experiences. However, this lack of civilian vocational training is counterbalanced by the vast amount of technical training these men have received while in service.

The armed services, like all society, have gone through an industrial revolution and, as a consequence, the technical jobs that must be learned as a part of the trade of war run into the hundreds. In the last war the technicians were in the minority; in this war, according to a statement of General Somervelle, the technically trained amount to about 63 per cent of the armed forces. "Without them," he says, "our army would be an incongruous mass incapable of effective action." The branches of the armed services—the Signal Corps, the Air Forces, the Army Supply Forces and the branches of the Navy—all have vast training enterprises, entering and graduating thousands of men a day. Two million men technically trained in navigation, mechanics, radio and a score of flight instruments carried as equipment in each plane have been required for the hundred thousand planes made last year. When it is considered that 60,000 trained specialists are required to launch a thousand plane raid and keep 10,000 men in the air, the number of technically trained men required for our mechanized forces can be readily imagined. The armed forces of World War II are adjusted to the understanding of highly complicated mechanical instruments and processes—antiaircraft gunnery under remote electronic control; navigation in the air and on the sea by the electron beam; radio communication—things which were entirely unknown at the time of World War I. It is true that much of this training has been narrowly technical and otherwise limited in scope, as is that of the average war worker, but the amount of it is unprecedented.

From such men as these will come the veterans who will be seeking our aid.

These men will fall in four general categories: (*a*) The veterans who will return home and will want a job. If they want their old jobs back, the facilities of the employment service of the Selective Service are at their disposal. If they want new jobs, the facilities of the U. S. Employment Service are available to them along with counseling and guidance work. (*b*) The veteran who will want to renew his educational program interrupted when he entered the armed services. At the present time there is no federal legislative provision to aid these veterans, but a number of bills have been introduced in Congress proposing such aid. Hearings are now being held on this subject. Just what final provisions will be made is not certain at the moment, but it has been proposed that provision be made for all veterans whose education was interrupted, that they receive a maintenance allowance while in training, plus the cost of tuition, books and supplies. One year of education is assured with certain provisions for additional training where it is merited. I have the feeling that some provision of this kind will be made, but until such law has been enacted there is nothing we can do with respect to the veteran falling in this group.[1] (*c*) Veterans who have disabilities which are not service connected—in other words, disabilities which existed prior to their induction into the service, or disabilities which are not pensionable under the federal act. The State Vocational Rehabilitation Board offers aid to many of these veterans. Mr. Shortley will discuss this program. (*d*) Veterans who come out of this war with disabilities incurred or aggravated in service and who have a vocational handicap. My subject implies that my discussion be restricted to this group.

On March 24, 1943 the President of the United States signed Public Law No. 16, 78th Congress. This act provides for a rehabilitation program of disabled handicapped veterans of the present war.

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1. At time of publication Senate bill 1767 had been passed by the Senate and a similar bill, with amendments, by the House. Apparently the two bills are now being considered by a conference committee.

The Veterans Administration therefore has been charged with the responsibility of carrying out the provisions of this act. A Vocational Rehabilitation Service has been established to administer the provisions of this law through its fifty-three field stations situated throughout the United States. We are now accepting disabled handicapped veterans for vocational training. The demand for vocational rehabilitation will be relatively light at first, but within a short time hundreds of veterans will be embarking on vocational training programs, and as this war continues the number will increase appreciably.

Much time could be consumed to discuss so-called contemporary thinking and practices of specialists and alleged specialists in the field of rehabilitation. To me the term rehabilitation has a rather broad and comprehensive meaning. In its broadest sense it should include all forms of physical, social, psychologic, recreational and occupational therapy as well as reeducation in vocational fields. There are those who have a very restricted conception of the meaning of the term, so much so that their vision often fails to encompass many vital factors in a vocational rehabilitation program.

As the act under which we are operating at the present time is restrictive, I shall, through necessity, confine my remarks to the subject of vocational rehabilitation and placement of the handicapped veteran. The other phases of rehabilitation shall have to be passed up at this time. I shall do my utmost to discuss the subject of vocational rehabilitation from the practical point of view.

Who Is Eligible for Vocational Training.—Every citizen should understand the basic requirements for entitlement to vocational rehabilitation benefits under this act. These requirements are that (1) the veteran must have served in the armed forces subsequent to Dec. 6, 1941 and prior to the termination of the present war, (2) he must have an honorable discharge, (3) he must have a disability incurred in service or aggravated by service for which pension is payable under the law (10 per cent or more), (4) he must have a declaration of vocational handicap and (5) he must be in need of vocational rehabilitation to overcome his handicap.

Training Pay.—While the veteran is pursuing a prescribed training program, and for two months after his employability is determined, the veteran is entitled to training pension pay as prescribed under the regulations. If he is a single man, his training maintenance is $80 a month; $10 additional pay is allowed for wife or husband, and $5 for each additional child. If the veteran's pension is normally below $80, a sufficient amount is added to the pension pay to equal $80. To illustrate: A veteran receives $30 pension; $50 more will be added to that amount to equal $80 per month payment. However, in the event that his pension for disability exceeds $80, pension is not reduced to this figure—it is continued at the awarded pension rate. Also the cost of tuition, use of books, supplies and equipment are paid by the government.

Accident While in Training.—If a veteran in the pursuit of vocational rehabilitation, and not the result of his own misconduct, suffers an injury or aggravation resulting in additional disability or death, the benefits under laws applicable to veterans of the present war shall be awarded in the same manner and extent as if such disability, aggravation or death were service connected within the meaning of such laws. Benefits under this provision shall be awarded on application therefor within two years after such injury, aggravation or death.

Revolving Loan Fund.—The law established a loan fund of $500,000, to be utilized as directed by the administrator. This is in the nature of a revolving fund for the purpose of making advancements not exceeding $100 in any case to persons commencing or undertaking courses of vocational rehabilitation. The money advanced bears no interest and is to be reimbursed in such instalments as may be determined by the administrator by proper deductions from any future payments of pension or retirement pay.

Vocational Handicap and Need for Rehabilitation Training.—The purpose of vocational rehabilitation is to restore employability lost by virtue of a handicap. Therefore it is important that we have available as full and complete information regarding the veteran's occupation as is possible, because a vocational declaration must be based on the inability or undesirability of the veteran's pursuing his prewar or army occupation. A vocational handicap will be determined to exist when, on the basis of the evidence of record as to the disabled person's education, occupational training and experience, it is found that the disability will materially interfere with securing and pursuing employment comparable with that for which the person is qualified by education, training and experience.

When the veteran is notified that he is eligible for vocational rehabilitation he is requested to come to the office for an interview.

One of the purposes of requesting the veteran to report to the Veterans Administration for an interview is to determine whether the handicap is of such a nature and degree that vocational rehabilitation is necessary. A number of factors must be considered in determining this need. Among these may be his ability to pursue his previous employment, experience and training as providing possible adjustment in occupation to overcome handicap, and the long time effects of the disability on ability to compete in employment.

Vocational Advisement.—After the need for vocational rehabilitation has been determined, we institute a program of vocational advisement. We are insisting on a thorough job of advisement, believing that the more thorough job we do in advisement the less will be our subsequent problems in training.

Vocational advisement must be individual in its practice and requires sound, practical judgment. Advisers must maintain an attitude of sincerity and sympathetic interest. Confidence of the veteran in the wisdom of the adviser is essential. This confidence is the very foundation of the common understanding that is so essential to good advisement. The veteran expects only a normal degree of friendliness and such natural dignity and common sense as to make him feel that the adviser is open minded and is willing to consider his interests in fairness. The interview must be natural in every respect and free from stiff formality. This is very essential if we are to get a free discussion of the veteran's problems.

Why is advisement so necessary? One would think that previous to enlistment these veterans had been employed in occupations for which they had been trained, but this is not true. It is appalling to learn of the large number of veterans, and this holds equally true of nonveterans, who merely drifted into a job, either through necessity or without knowledge of the broader field of opportunities in other lines of activity.

With us vocational advisement and guidance is more than giving information about vocations. Our program

must be more comprehensive than this. Complete advisement should acquaint the veteran with full possibilities in various occupations—a comprehensive picture of the specific field of his selection. In many instances advisement must be exploratory. In the case of the normal worker, advisement may be rather simple; but with us we must keep in mind constantly the physical impairments of the individual and direct our guidance in the specific field in which the individual can carry on successfully despite his disability.

We must make an exhaustive inquiry into the veteran's previous scholastic training, his occupational experience, interests, hobbies, intelligence level and aptitudes.

It has been said that aptitudes are inherent. So we may utilize tests in an effort to discover the veteran's aptitudes. These tests help us to discover special aptitudes—accounting, creative ability, mechanical dexterity and so on. In many instances these special aptitudes are hidden or have remained dormant. As the veteran may have lost a number of his abilities, it is important that we discover if possible any hidden or dormant abilities remaining.

If we do a satisfactory job of testing and determining results there will be less need to "expose" veterans to shop or job requirements to see if they "fit." Exposure to numerous shop or job experiences is all right with younger immature persons where time is not such a vital factor, but we are dealing with adults, and time is the essence of everything. We must cut short the period of time normally consumed to discover likes, dislikes, aptitudes and abilities. As a general rule these veterans want quick results. In some instances a veteran needs further development of a partial skill he has already acquired to make him employable, while another will be obliged to train for an occupation entirely new to him.

Selecting an Employment Objective.—After full consideration of the veteran's scholastic training, occupational experience, interests, hobbies, intelligence and aptitudes we undertake to select an employment objective.

In simple terms, the employment objective is the thing for which we propose to train the veteran. As the law requires training for specific employment, it becomes imperative that a definite job objective be selected. All training must be in the direction of the accomplishment of this objective. General and academic education as such is "out the window," but any academic training required to reach an objective is permissible.

We strive to make the veteran feel that he is a party to this whole program and that a decision in an appropriate employment objective is most vital to him. His interests and desires are fully considered, and we must be convinced that these interests and desires are real and lasting. We must explore fully the entire field of employment. Also in selecting an objective we give consideration to the possibility of providing training that will be applicable to the requirements for employment in other positions closely related to it, utilizing the job family technic.

In selecting an employment objective we must keep in mind the veteran's intelligence level and the level of the occupation in which the veteran was previously employed. This shall in no case constitute a criterion by which to limit the level of the employment objective selected. The normal progress in employment is from occupations of lower level to those of high level, and therefore the occupational level should never be applied in such a way as to preclude the selection of an employment objective requiring such a rise in level as seems necessary under the circumstances in the individual case to provide an objective suitable to restoring the employability which was lost by reason of the disability. Extreme differences, however, between the level of the chosen objective and that of the veteran's previous employment are not warranted.

The employment objective in each case must be considered in relation to the training required. The course of training must be completed within the minimum time essential to restoring employability. However, the maximum training period allowable under the law is four calendar years. We must complete the job within this period—training and determining employability.

Physical Disabilities Contrasted with Vocational Handicaps.—We need to distinguish between a mere physical disability and a vocational handicap. This is vital. A physical disability does not necessarily mean a vocational handicap. Many veterans may possess physical characteristics that have a tendency to limit their accomplishments in certain fields but may not be considered handicaps. However, when these limitations become so great as to prevent them from doing specific performances on an equal basis with normal workers in that field, the disability of course becomes a handicap. Our primary consideration here is the veteran whose disability limits his normal performances to the extent that these limitations constitute a handicap.

In considering a program of rehabilitation for a handicapped veteran we must consider (1) the abilities he has lost, (2) the remaining physical abilities he possesses, (3) the requirements of the job for which he is to be trained, (4) the type of facility to be used and last, but not least in importance, (5) the attitude of the man who will employ the veteran after he has been trained.

Extent of Physical Limitations.—It is important that we know in what way and to what extent the disability of the veteran limits his ability to work. It is not sufficient to know that a person has a heart disability, diabetes or a permanent injury to his legs or hands. We may know in a general way how these disabilities impair one's capacity for work, but to do our job satisfactorily we need to know in detail the extent of the physical impairment caused by these and other disabilities.

We cannot always rely on the veteran himself as a source of information about his physical limitations. He does not always know the extent to which his disability may interfere with employment.

The medical records and the skill of the advisement officer are most important in this connection. Full and complete knowledge of the limiting phases of the disability is a paramount factor that must be fully explored in our advisement program.

Physical Abilities Remaining.—With us it is important to know what a veteran can do with the abilities he has remaining. We must be in a position to utilize and develop fully these remaining abilities. If the abilities he has lost create a vocational handicap, we are confronted with the problem of developing skills with the remaining abilities in such a way as will enable him to pursue an occupation comparable with that of the normal worker.

What we are in a position to do with the veteran will depend on his intelligence, occupational experiences, interests, aptitudes, developed skills, additional knowledge that can be acquired and his disabilities. With a

knowledge of these factors we may be able to redirect and adjust his occupational activities. In many instances we can capitalize on his past training and experience. For example, a person may have been a millwright worker prior to his service and have had considerable training in mechanical drawing and blue print reading but, owing to physical disability, be prevented from pursuing his prewar occupation. We can capitalize on his previous training in drawing and train him to become a draftsman. In other instances we may be obliged to train the veteran for an entirely new field.

In connection with this problem we find many instances in which a veteran develops an emotional disturbance which must be taken into consideration. This emotional disturbance frequently results from his constant worry over his disability, and it may reach the point where the veteran's confidence in himself becomes impaired. It is not uncommon to have this factor appear in the picture. This emotional upset may reach the point where it becomes the dominating factor in the vocational rehabilitation program.

I have in mind one veteran who had a disability of manic depressive psychosis which had been aggravated considerably by his conviction that every employment manager knew of his disability. I spent considerable time proving to him that this was a false notion on his part and finally succeeded in convincing him that there were only two persons who knew of his disability, and if he did not disclose it I was positive that I would not do so. He felt relieved over this. He has been in training now for several months; his attendance, attention in class and progress in his work are considerably above the average. He is gradually overcoming this phase of his handicap. He is beginning to feel that the "breaks" are coming his way.

Requirements of the Job.—After a thorough analysis of the veteran's physical impairments and what abilities he has remaining, we must know the physical as well as the scholastic requirements of the job for which the veteran is to be trained. Much research has been carried on in recent years by the Research Division of the Department of Labor and by private industry. We have available today job definitions and job requirements of more than twenty-seven thousand different jobs, but this information does not always disclose the physical requirements of the job. Some of the things we need to know about the job in addition to job definitions are strength requirements, physical energy requirements, nerve requirements, eye strain, body dangers and presence of dirt, dust, fumes, moisture and noise. Other factors in this connection must be known to the adviser. Some of them are general educational requirements, accuracy, ability to assume responsibility, judgment, ability to analyze, foresight, management ability, alertness, application required, initiative requirements, originality, adaptability and memory ability.

Another factor in connection with the requirements of the job is the training itself—we call this the training program. A complete training program is prepared for each veteran. In this program are listed in proper sequence the major kinds of work tasks, job operations, processes, skills and occupational information required to qualify the veteran to become employable in the chosen objective.

Type of Facility to Be Used.—As we expect to train these veterans for permanent employment, we anticipate that a period of training will be required to qualify them for new jobs or jobs closely related to previous occupations.

The training facilities of educational institutions of recognized standing, industrial establishments, farms and governmental agencies will be utilized to train these disabled veterans for employment. The law provides that "the purpose of rehabilitation is to restore employability lost by virtue of a handicap due to service incurred disability." Therefore, "training into employability" shall be our chief aim. This employability may be attained by institutional training, training on the job or both institutional and job training.

Employer's Attitude.—One of the difficult problems in connection with securing employment for the physically disabled veterans arises from the attitude of employers toward employing persons with disabilities. For centuries the person with a physical handicap or disability was considered a social liability. In recent years, however, this picture has changed perceptibly. We have demonstrated that physically handicapped persons can be employed in jobs where they can produce on a comparable basis with the person considered normal physically if they have been adequately trained and properly placed. Here is ample proof of this statement:

Some years ago the proprietor of a large industrial enterprise established a definite policy of employing disabled workers. He organized an adequate staff of medical men and personnel specialists to put the plan into operation. In brief, the plan works something like this: When a disabled person applies for a position, he is turned over to the medical department for study. His disabilities are analyzed from the standpoint of occupational pursuits which will utilize to the maximum his remaining physical abilities without aggravating his disability. After this analysis has been made, the personnel specialist is consulted to determine the kind of job the man can do in the light of medical findings. A shop foreman is brought into the picture to assist in directing and supervising the actual employment of the man. This policy has been proved so sound that the management proposes to expand the present program of employing handicapped persons.

As of Dec. 14, 1942 there were employed in one plant 11,163 disabled persons. Of course many of the disabilities listed are minor, while others are quite serious.

For example: They had employed 91 persons with one arm amputated and 3 persons with both arms amputated. These men act as watchmen, attend doors, operate elevators, pick up papers and work on salvage. Some of the one-armed workers are aided by the use of an artificial arm.

One hundred and eleven deaf mutes were employed; these men are allowed to do almost any type of employment that a normal person can do. They are, however, kept in buildings where there are no overhead cranes; this is to protect them from falling stock.

One hundred and thirty-five epileptic persons were employed; these men are placed on sweeping, light bench work, inspection and the like.

Thirty-five totally blind persons were employed in such work as packing small stock for shipping, assembly work and inspection.

Three hundred and eighty-two persons blind in one eye were employed on bench work, sweeping and similar jobs but are not permitted to work on machines where there is a possibility of eye injury or to pursue any other occupation barred by the Safety Department.

Three hundred and ninety-seven persons with finger amputations were employed in varying occupations depending on the extent of the disability. Many of

these workers are on regular production work on benches or machines; others work on salvage, cleaning departments and so on.

Two men with both legs amputated are working at such jobs as will permit sitting; they pack stock, repair electrical equipment and do inspection and clerical work. There were 157 persons with one leg amputation. With the aid of an artificial limb some of these men do full time standing work at machines and production benches; others work at jobs similar to those pursued by workers with both leg amputations.

I am not going to attempt to cite workers falling in all of the seventy-one categories, but I have attempted to give a few to show what a carefully organized program based on such a policy can accomplish.

Now what is the proof of soundness of such a policy? There is considerable feeling that insurance rates under workmen's compensation will be increased if disabled persons are employed. As a consequence of this feeling, many persons with disabilities are rejected for employment. There is little evidence in fact that such a feeling is justified, because it has been learned through experience at this plant that the accidents among disabled workers are less than the accidents among normal workers doing similar work. The answer here of course is quite obvious—disabled workers are more cautious. A man blinded in one eye is going to be very careful to protect the other eye.

This experience has brought out several other interesting facts. A greater degree of loyalty among disabled workers is observed. In many instances production has increased. This policy has proved so successful that this organization has announced that it can employ 30,000 disabled persons in its plants throughout the United States.

During years of economic recession, when there is an abundance of available labor, the physically handicapped find it difficult to secure employment. Many employers have not yet become "handicapped worker" conscious, so they have preferred to employ able bodied workers, but when the pendulum swings in the direction of improved economic conditions and labor becomes scarce, many employers turn to those with physical disability as a matter of survival.

The labor supply during the current emergency has become so acute that about all the employer requires now is that the applicant possess a pulse and a warm body. But what will the employer's attitude be when the emergency has ended and labor supply becomes more abundant? Will he return to his prewar policy of strict observance of the old employment requirements?

It is my conviction that the question of employing disabled persons is pretty much a matter of individual employer policy, and because of this there is a great need for education among employers in this direction. The approach to employers in connection with adoption of such a policy is not made on the basis of sympathy. It is approached on a practical basis, the basis that every disabled person, if adequately trained and properly placed, can be made an economic producer comparable to any normal worker. The disabled person does not want to be employed on the basis of sympathy—he wants to prove that he can carry on successfully despite his disability. It is the responsibility of industry to assist in the development, organization and adoption of a sound policy of employing disabled persons.

Attitudes and fixations are not changed quickly. A tremendous amount of missionary work needs to be done among the employment managers and industrial physicians in order to bring about a more general adoption of a policy to employ persons with disabilities. The medical staff of industrial enterprises needs to be informed of possibilities in this field. Legislation providing for workmen's compensation insurance must be on a more liberal basis. This will be done as experience disproves the old traditional idea of increased insurance rates when employing disabled workers.

It seems to me to be reasonable to assume that such a policy is truly a part of a broad interpretation of a rehabilitation program. In fact, if this war continues and the number of disabled men increases, this may become a major aspect of rehabilitation and employment.

I do not believe that it is anything new for me to say that industry owes more to society than simply the payment of "so many dollars for so many hours' labor." Society makes the existence of industry possible, and its responsibility does not end with the pay envelop. Industry obligates itself for more than the wages paid to employees and taxes to governmental bodies.

Some years ago I heard the operator of a large chain of hotels say "You can't buy loyalty. You pay so many dollars for so many hours of work." At that time he was little concerned about the loyalty of his workers, but he lived to witness the day when he found that the rendering of ideal service to the public required loyalty of his workers. In his later years of management experience he became a confirmed exponent of the importance of employee loyalty.

Asset Value of Rehabilitated Persons.—Let us look at the record to see what this problem really is. The losses through injuries in industry, for example, stagger the imagination. Statistics show that the compensation for injuries in industry in Illinois was 7 per cent greater in 1942 than in 1941. In Illinois alone during 1942 we had a total of 43,107 injury cases with an aggregate compensation of $9,065,357, compared with 41,454 cases shown in 1941 involving $8,502,930 compensation. These figures, of course, do not include many injury cases in and out of industry. For example, injuries in which disability terminates within a seven days waiting period are not compensable in Illinois and are not recorded. If all these disabling injuries were recorded, we could add to the 43,000 another 116,000, and if we were to add to this figure those injuries sustained in the home, the figure of course would be much larger. Now these figures are for Illinois alone. If we had available the figures for the entire United States, we would have a fuller realization of the tremendous economic losses caused by accidents and subsequent physical disabilities.

Let us see what the record is with respect to the known number of disabled persons throughout the United States. In a recent survey made by the United States Public Health Service it was estimated that there was a total of approximately 2,500,000 people in the United States with orthopedic handicaps, 3,700,000 with heart disease, 680,000 with tuberculosis, 114,000 totally blind and 65,000 totally deaf. These are more or less major disabilities.

It has been estimated that 10 per cent of all men in the armed forces are going to be discharged with some form of disability. If one and a quarter million veterans

coming out of this war with disabilities are added to the civilian disabilities, it will be possible to get some notion of the magnitude of this problem—a total of 8,309,000 disabled persons. This is a problem industry cannot close its eyes to and refuse to assume its share of the responsibility of doing something about. The loss of man power labor hours to industry if these veterans go untrained staggers the imagination. If we do our duty and train these veterans adequately so that they can carry on successfully in new occupations on a comparable basis with the normal worker, the asset value to industry and society is incalculable.

After all, if we look at this problem from a materialistic standpoint alone we can see a definite asset value to society and industry in a rehabilitated veteran—a proud and self-reliant citizen and a valuable economic producer instead of a depressed victim of charity.

Cooperation.—The Veterans Administration is charged with the responsibility of preparing the handicapped veteran to carry on successfully in our industrial society. All of this requires advisement, training and employment. This is going to be our objective. We must not fail and we will not fail if each of us will do his part in this gigantic undertaking.

The Veterans Administration obviously cannot do this job alone. We need the friendly understanding and cooperation of everybody controlling the operation of business concerns, labor organizations, educational institutions, governmental agencies and any other facility we may be called on to utilize in order to accomplish the training and employment provisions of the Vocational Rehabilitation Act and their assistance will be welcomed.

These veterans have come from all walks of life—professional fields, offices, factories, mines, farms, transportation system. They will return to positions in these various fields. Their scholastic level ranges from illiteracy to university graduates, from unskilled laborers to most highly specialized technologists. Our problem is just that broad in scope and interest.

These veterans must be trained and returned to satisfactory employment. Physical disabilities will not be employment handicaps when these veterans are adequately trained and properly placed in occupations in which they can carry on successfully without aggravating their disabilities.

Many veterans are now being returned to their home communities by Army, Navy and Veterans Administration hospitals. Our responsibility is to train them for successful and satisfactory employment.

These veterans left the work bench, the office desk, the sales counter, industrial shops and entered the armed service not with any desire to lose a leg, an arm or an eye, suffer a gunshot wound or acquire an organic disease but to fight for a cause which was just as much a concern of those who remained at home as it was of the veterans who engaged in battle; and in some measure it was a much greater concern of many of us, because of the position of our enterprises in the world of affairs. Now these men are coming back and asking for an opportunity to return to civilian life as normal economic workers on the same productive basis as any other employee. It is only fair that we supply that opportunity. This seems to be a reasonable request in return for the magnanimous service they have rendered to our country.

STATE PLANS FOR REHABILITATION

MICHAEL J. SHORTLEY
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WASHINGTON, D. C.

No group in the country is more fully aware of the need for rehabilitation of the disabled than are industrial physicians, who, more than any of us, see the entire cycle from the time a patient is brought for treatment immediately after injury, through all the long process of emergency surgery, hospitalization, convalescence, fitting of the prosthetic appliance, to the time when advice is asked concerning the most suitable type of training and placement for the handicapped person in employment. No group is more fully aware of the problem and no group has done more to aid in stimulating and carrying out measures for aiding the disabled to recover their usefulness and to become again self-supporting members of the industrial community. I greatly appreciate having the opportunity to meet with you today, to offer you our aid in meeting this rehabilitation problem, and to seek your help in planning our new program.

I am sure there is no dispute among us as to the importance of furnishing rehabilitation service to the disabled. However, we hope that the number of persons who require this service will be reduced year by year, since rehabilitation is the last link in the chain of services which begins with another of your major responsibilities: prevention of disease and injury. But the day is yet far off, I am afraid, when all disabilities will be prevented, and until then we shall continue to be confronted with persons who need physical and vocational rehabilitation.

On the program today are those who have seen at first hand the contribution that can be made by handicapped workers, suitably trained and suitably placed. They know from personal observation that the handicapped are among the most productive, efficient and reliable employees in industry. They know too the technics of training and placing these workers to the best advantage. I shall not labor the point; nor shall I go into the problems of the rehabilitation of men disabled in the armed services which have been so ably presented by the distinguished speakers representing the Army, the Navy and the Veterans Administration. My part will be to outline the new federal-state program for other handicapped persons which was recently initiated by the Congress in passing the Vocational Rehabilitation Act Amendments of 1943. We shall be concerned with all handicapped persons whose employability can be improved, and these will include among others the selective service rejectees, veterans with non-service connected disabilities, and war disabled civilians (i. e. merchant seamen, members of the aircraft warning service, civil air patrol and U. S. citizens defense corps) injured in line of duty.

First, I should like to indicate briefly the dimensions of the problem we are facing. Probably the most reliable data on the number of disabled persons in the United States is found in the National Health Survey, carried out under the direction of the Public Health Service in 1935. In that peacetime year there were no less than 23 million persons in the country with physical handicaps severe enough to affect employability. Sixteen million of these were of working age, from 16 to 64 years old. The vast majority of these per-

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sons either were suitably employed or could be employed merely through intelligent guidance and selective placement—but about 1,400,000 men and the same number of women, exclusive of those in institutions, were so severely disabled as to require rehabilitation before satisfactory remunerative employment could be possible. Perhaps one fourth of this group would never be employable outside the home or a sheltered workshop even after extensive rehabilitation measures, but employment in ordinary industrial or agricultural pursuits would be possible for at least a million men (and as many of the million women in similar circumstances as wished to seek employment) if they obtained appropriate rehabilitation services. This was true in 1935 and it is probably true today, since it is known that 100,000 of the 800,000 persons severely injured each year are added to the ranks of those who require rehabilitation to obtain useful remunerative employment.

The problem is large, and it is clear that the solution of any major portion of it would mark an important contribution to our economy as well as to the self respect and happiness of the handicapped. It would remove these persons from dependency and turn them into contributors. During 1941, 1942 and 1943 over 12,000 persons referred to us by relief agencies were rehabilitated and placed in employment. It is estimated that the rehabilitation of this group alone effected an annual reduction in the relief rolls during 1943 of $3,222,527. At the present time it would provide sorely needed manpower for many hard-pressed war industries. It is that solution which Congress has sought in passing the new rehabilitation law.

What, then, are the details of the new program? Who is to conduct it and what are their plans? You will recall that an approach to the problem of civilian disablement was first made by the Congress twenty-four years ago with the Vocational Rehabilitation Act of 1920. Subsequently Congress authorized the use of $3,500,000 of federal funds annually as grants-in-aid to match state funds for the guidance, training and placement of physically handicapped persons and to provide them with prosthetic appliances necessary for employment. Service was limited to physically handicapped persons and did not include special services for the blind. Federal funds were not available for physical restoration. During the twenty-three years this act was in force, approximately 210,000 persons were rehabilitated into remunerative employment under the program. The case load has increased rather rapidly in the last few years, and in 1942 alone more than 42,000 persons were rehabilitated. These were commendable results considering the limitations of the 1920 act but obviously did not make very great inroads into the potential case load of handicapped persons.

The new law (Public Law 113, 78th Congress), which is known as the Vocational Rehabilitation Act Amendments of 1943, greatly broadens and strengthens the rehabilitation program. Perhaps the most significant new provision is that which enables the federal government to furnish funds for physical restoration. Moreover, the blind are now included, and so are the mentally handicapped, as well as the physically handicapped. The federal fiscal provisions have been considerably liberalized. Instead of having a fixed ceiling for the federal appropriation, the new law authorizes the appropriation of funds necessary to carry out the provisions of the act. For medical care, vocational training and other similar services to the usual groups of handicapped persons, the federal government will match state funds on a 50-50 basis. For war-disabled civilians, defined as merchant seamen and members of and trainees for the citizens defense corps, civil air patrol, aircraft warning service, the federal government will reimburse the states 100 per cent. Necessary state administrative costs will be reimbursed 100 per cent with federal funds. I think we can say that the new law permits the establishment of a complete rehabilitation service for all persons who would benefit from the services. Of the utmost importance, therefore, are the arrangements made to refer such persons to the state rehabilitation agencies. The entire program in the states will be administered by the state boards of vocational education and the state agencies for the blind. We are in the process of making cooperative agreements with some twenty-three federal agencies whose paths cross ours so as to make sure that all potential beneficiaries are referred to the state agencies operating the program. Moreover, we are urging the states to work out agreements with the workmen's compensation commissions, the welfare departments, health departments, crippled children's agencies and other public and private groups such as hospitals, physicians, charitable organizations and the Red Cross under which referrals will be made to the rehabilitation service.

In general, the rehabilitation services available under this program will include medical and vocational diagnoses, vocational guidance, physical restoration, vocational training, funds for maintenance during training, and placement in remunerative employment. All handicapped persons eligible for service may receive medical and vocational diagnosis, guidance, training and placement services irrespective of their financial status. However, with regard to physical restoration services, prosthetic appliances, maintenance during training and instructional supplies such as books and tools it must be shown that the applicant is unable to pay for these services or supplies from his own resources before federal contributions are available.

There are certain other limitations with respect to physical restoration services. In the first place, the services to be rendered must be expected to reduce substantially or eliminate the employment handicap. Also the treatment may only be given for conditions which are "static." It is clear that this term was intended by Congress to differentiate the conditions to be treated under this program from ordinary acute illness or injury. We do not feel that it was intended to mean that we must await the end results of a long term illness, however, before starting service. For example, it would not be necessary to await the onset of total blindness before a person with glaucoma could be treated under this program. Hospitalization is limited to a period of ninety days for any one disability. This limitation was clearly intended to distinguish our program from one providing custodial care for chronic illness. In short, we can say that the rehabilitation program emphasizes constructive medical measures designed primarily to assist a handicapped person to obtain suitable remunerative employment. If we are to succeed in the physical restoration of handicapped persons we shall require the services of the best qualified specialists and the superior facilities of the most modern hospitals.

In establishing the physical restoration program in the federal office, we have sought medical advice both from within the government and from outside. By agreement with the Surgeon General of the U. S. Public Health Service, our physical restoration program is being directed by Public Health Service medical

officers assigned to our office. As time goes on we hope for the assignment of other medical officers from the Public Health Service to carry responsibility for us in various specialized fields. As a result of our conferences with nongovernmental agencies, the administrator of the Federal Security Agency has appointed a professional advisory committee with representatives from all the fields of medicine which will be of primary importance in the rehabilitation program, including internal medicine, orthopedics, tuberculosis, psychiatry, industrial medicine and physical therapy. I am happy to say that two of the men on the program today have accepted appointments on this committee, namely Dr. Raymond Hussey and Dr. H. A. Vonachen. The professional advisory committee will meet in the near future and we shall look to it for advice with regard to standards to be recommended to the states regarding quality of services, rates and methods of payment, and other matters of professional policy on this program.

After consultation with the national professional advisory committee we expect to be able to recommend to the states certain fundamental principles about the operation of their physical restoration programs. For one thing we shall hope that the state boards of vocational education and the state agencies for the blind will seek to establish close cooperation with existing state agencies in related fields, such as state health departments, crippled children's agencies and medical boards of workmen's compensation commissions. We also hope to encourage the states to look to the medical and allied professions for advice through the formation of state professional advisory committees and through appropriate medical consultation in their day to day operations. It is clear that the medical work in rehabilitation will often be of a specialized character, and in work of this type it seems to us of the utmost importance that standards be established which will assure our handicapped clients of medical services of high quality. It is well worth the cost in public funds if we are able to assist an individual to change from a state of dependency into one in which he can contribute to the productive effort of the community. It is apparent that a prudent use of public funds requires that we obtain for him medical service of the highest quality.

In encouraging these standards, however, we hope at the same time that the states will utilize all existing professional resources to their fullest capacity, and we do not believe that it will be necessary to attempt creation of new ones except in most unusual circumstances. We shall have our special problems to which, as time goes on, much time and attention will be devoted. I am thinking particularly of work in the fields of psychiatry, tuberculosis, ophthalmology and otology, in all of which much remains to be done that was not possible under the old law. I hope we shall see special projects for service in these fields established in various states, attempting to discover the most satisfactory methods of rehabilitating persons with these handicaps. New projects will differ considerably in character from one state to another, and through the experience of the various states we shall be able to learn much in fields which have hitherto not been explored thoroughly. One of the functions of our national office will be to utilize the experience of one state to assist another in establishing programs of similar types. Our principal job is to give the states such guidance and assistance as will enable them to develop and operate effective programs. We shall be in a position to extend the practical results of successful programs in some states to the other states.

What should be our goal? It seems to me that, ideally, we will attack this backlog of a million and a half and the annual increment of 100,000 to 200,000 handicapped persons with all the vigor we can command and, by means of physical restoration and vocational training, establish every person possible in suitable remunerative employment. This will take time, but it is our ultimate aim and, with your help and that of the many others interested in this constructive work, we shall attain our goal.

CURRENT DEVELOPMENTS AFFECTING THE PHYSICIAN'S ROLE IN MANPOWER UTILIZATION

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AND
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SAN FRANCISCO

In August of 1943 the West Coast Office of the War Manpower Commission sponsored a new technic for the selective placement of workers in accordance with their physical capacities. It was at this time also that the need became apparent for a selective placement program for Kaiser workers in the Richmond Shipyards. About six months previous to this date, however, we had met under circumstances unrelated to our present official connections and in a preliminary way had worked on the concepts of this new technic. It was natural, therefore, that the Kaiser Shipyards should become its first testing ground. Although it is still in a developmental stage, the War Manpower Commission has already adopted the technic as the official national procedure for placing all workers on jobs in accordance with their physical capacities, with particular reference to the placement of the war disabled.[1]

PHYSICAL DEMANDS AND CAPACITIES ANALYSIS

The technic is named Physical Demands and Capacities Analysis. Its essential feature is the analysis of both the physical demands of jobs and the physical capacities of workers along the same basic pattern. The adoption of the identical pattern for the dual purpose of analyzing both the worker and the job facilitates the matching of the two, while at the same time the pattern itself provides a breakdown into specific factors which assists in more accurate placement.

In the framework of the pattern both physical and environmental factors are considered. It was found that both the physical demands of the job and the physical capacities of the worker can be analyzed under twenty-five major headings, such as lifting, carrying or handling. It was also found that both the environ-

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Read before the Sixth Annual Congress on Industrial Health, Chicago, Feb. 16, 1944.
From the Permanente Foundation Hospitals, Kaiser Shipyards (Dr. Kuh) and the Regional Staff, War Manpower Commission (Mr. Hanman).
Cooperation with the authors was extended by Dr. Sidney R. Garfield, medical director, Dr. Cecil C. Cutting, chief of staff, and Dr. Morris F. Collen, director of medical department, Permanente Foundation Hospitals, Oakland and Richmond; by Clay P. Bedford, general manager, George Miller Jr., labor relations director, C. E. Brindson, personnel director, Dave Kaye, safety engineer, and M. Myers and C. P. Emery, rate bureau, Kaiser Shipyards, Richmond; and by William K. Hopkins, director, and William B. McCarter, chief of Bureau of Manpower Utilization, War Manpower Commission, Region XII, San Francisco.

1. Selective Placement for the Handicapped, United States Employment Service, War Manpower Commission, Washington, D. C., December 1943. Utilization of Womanpower: Employment of Women in the Shipbuilding Industry, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C., November 1943. Ex-Service Men.[2]

mental demands of the job and the environmental capacities of the worker can be analyzed under twenty-five major headings, such as inside, outside, high temperature or low temperature. In all, fifty physical and environmental headings or factors have become the essentials of the pattern selected for analyzing both worker and job.

Let us consider, for example, the physical factor of lifting. The analyst determines how much lifting, if any, a specific job requires. The physician estimates whether or not the worker shall be restricted in respect to lifting and, if so, the maximum weight he can safely lift. Therefore, in respect to the physical factor of lifting, it can be said whether or not the worker is suited to the specific job. The other physical factors are similarly treated.

Permanente Foundation Hospital ☑ Oakland, California — Permanente Field Hospital ☐ Richmond, California

PHYSICAL CAPACITIES ANALYSIS Hospital No. 25609

Name John Doe Sex M Age 40 Ht. 70 Wt. 160 Badge No. 1019

Job Arc Welder Job Location Outfitting Dock (Hulls) Shift G Yard No. 3

PHYSICAL FACTORS			ENVIRONMENTAL FACTORS	
✓ 1 Lifting	15 Twisting	51 Inside		65 Vibration
✓ 2 Carrying	O 16 Reclining	O 52 Outside		66 Noise
3 Handling	17 Sitting	53 High Temperature		67 High Places
4 Pushing	18 Reaching	54 Low Temperature		68 Cramped Quarters
✓ 5 Pulling	19 Fingering	O 55 Sudden Temp. Changes		O 69 Wet Quarters
O 6 Climbing	20 Feeling	56 High Humidity		70 Working With Others
O 7 Jumping	21 Talking	57 Low Humidity		71 Working Around Others
O 8 Running	22 Hearing	58 Toxic Conditions		72 Working Alone
✓ 9 Walking	23 Seeing	59 Radiant Energy		73 Day Shift
✓ 10 Standing	24 Color Vision	60 Moving Objects		O 74 Swing Shift
✓ 11 Stooping	25 Depth Perception	61 Mechanical Hazards		O 75 Graveyard Shift
✓ 12 Crouching	26	62 Electrical Hazards		76
✓ 13 Kneeling	27	63 Exposure to Burns		77
O 14 Crawling	28	64 Explosives		78

(Blank space — Full capacity. ✓ — Partial capacity as qualified below. O — No capacity.)

DETAILS OF PHYSICAL FACTORS: May lift and carry up to 25 pounds 6 times per hour.
May intermittently climb up and down ramps, stairs, or ladders up to ____% of work period.
May engage in activities numbered ____ up to 2/3 of work period.
May engage in activities numbered 9, 10, 11, 12, 13 up to 1/3 of work period.
Sight:
Hearing:
Other: 4+5 effort equal to 1+2.

DETAILS OF ENVIRONMENTAL FACTORS:

Date 1-27-1944 Physician Richard Roe M.D.

(This space for record of Placement Officer)

New Job Assigned ____ Job Location ____ Shift ____ Yard No. ____

Hospital Notified ____ 194__ Signed ____

(To be completed by Placement Officer, detached, and returned to Hospital of origin)

Name ____ Badge No. ____ Hospital No. ____

New Job Assigned ____ Job Location ____ Shift ____ Yard No. ____

Date ____ 194__ Signed ____

Form 1.—Completed original copy of physical capacities analysis which physician sends to placement officer. Carbon duplicate and triplicate copies on which the diagnosis appears are filed in the patient's clinic record and central hospital file, respectively. Diagnosis in this case: Rheumatic heart disease with mitral stenosis, enlarged right ventricle, sinus rhythm, compensated, functional capacity grade II.

Likewise, in respect to the environmental factor of working outside, the analyst determines whether or not the specific job requires working outside. The physician rules whether or not the worker can work outside. Therefore, in respect to the environmental factor of working outside, it can be stated whether or not the worker is suited to the specific job. The other environmental factors are similarly treated.

Following the basic pattern, the physical demands of the jobs at Richmond Shipyard Number Three have been analyzed by a staff of ten analysts employed by the Kaiser organization and trained and supervised by Hanman.[2] All jobs were analyzed with the exception of clerical occupations and skill levels above journeyman. The analysis netted 493 physical demands analysis schedules, which were based on approximately 2,500 observational analyses. The data so obtained will serve for the other Kaiser shipyards and will subsequently be released to the entire shipbuilding industry.

And again, following the same basic pattern, the physical capacities of workers at the Richmond Shipyards have been analyzed for selective placement on jobs. These workers, since the labor agreements prohibit preplacement physical examinations, have been individuals who presented themselves at the Permanente Foundation Hospitals in Oakland and Richmond for treatment either for industrial disabilities or for non-industrial complaints under the prepaid health plan operated for Kaiser shipyard workers by Dr. Sidney R. Garfield and his associates. Unsatisfactorily placed workers have been uncovered during their course of treatment either as inpatients or as outpatients. The entire hospital or clinic chart with its physical and laboratory examination data becomes the basis for the physical and environmental analysis. During the three month period from Oct. 1, 1943 through Dec. 31, 1943 the physical capacities of over 1,000 workers have been analyzed by over fifty of the eighty staff doctors—for these physicians a new role in manpower utilization. These doctors have been assisted in this assignment by staff conferences and by a specially prepared manual which includes directives and definitions of terms.[2]

MATCHING WORKER AND JOB

A completed physical capacities analysis showing the capacities of a worker is reproduced in form 1. For comparison, form 2, a completed physical demands analysis, is shown to indicate the physical and environmental demands of a job. It is to be observed that the two forms have the same basic pattern.

The physical capacities analysis is prepared by the physician in triplicate with the use of carbon paper. The original form is sent to the placement officer. It is to be noted that the clinical diagnosis, which is not needed for placement, does not appear on the original form. The duplicate form is attached to the worker's clinic record, and the triplicate is kept for reference in a central file in the medical department. The diagnosis appears on the latter two records in the space provided and thus preserves the confidential nature of the diagnosis. After the worker has been placed, the placement officer completes the lower section of the original record. He indicates the new job assigned on a detachable part of the form and sends it to the medical department for attachment to the patient's clinical record. Record of the placement is also noted on the triplicate form in the central medical reference file.

The example given in form 1 is that of an arc welder working on the hulls at the outfitting dock during the graveyard shift, who was found after study in the clinic to have rheumatic heart disease with mitral stenosis, enlarged right ventricle, sinus rhythm, compensated, functional capacity grade II.[3] The patient's job requires considerable climbing and lifting and carrying up to 50 pounds. The physician, therefore, has recommended that the worker be placed on a new job and has indicated his physical capacities as follows: He may lift and carry up to 25 pounds six times per hour and push and pull with equal effort. He may walk, stand, stoop, crouch and kneel up to one third of the work period

2. Physical Demands and Capacities Analysis, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, San Francisco, October 1943 (a manual for physician, job analyst and placement officer).

3. Nomenclature and Criteria for Diagnosis of Diseases of the Heart, New York, Heart Association, 1943.

but may not climb, jump, run, crawl or work in a reclining position. He must not work outside and must avoid sudden temperature changes and wet quarters. He must avoid working on swing and graveyard shifts. The entire form is completed with a minimum of writing by the physician.

A new job, which has been determined to be suitable for this worker, is that of welder in the reclamation shop (form 2). When reference is made to the job analysis it will be seen that the worker satisfies the requirements of this job. First there is no change in skill requirements. As to the physical factors, the job does not require lifting and carrying over 10 pounds (for 5 per cent of the work period). Pushing and pulling are not required. Walking, standing and stooping (in respect to which the worker is restricted up to one third of the work period) are required up to 10 per cent of the work period only. Not one of the other activities for which the worker is restricted is required by the job. Sitting, reaching and seeing are required,

PHYSICAL DEMANDS ANALYSIS

Job Title: Welder, Arc, Production (Journeyman or Trainee)
Job Location: Reclamation Shop, Richmond Shipyard Number Three
Dictionary Title: Welder, Arc — Dictionary Code: 4-85.020

PHYSICAL FACTORS				ENVIRONMENTAL FACTORS			
X	1 Lifting	0	15 Twisting	X	51 Inside	0	65 Vibration
X	2 Carrying	0	16 Reclining	0	52 Outside	0	66 Noise
X	3 Handling[1]	X	17 Sitting	*	53 High Temperature	0	67 High Places
0	4 Pushing	X	18 Reaching	*	54 Low Temperature	0	68 Cramped Quarters
0	5 Pulling	0	19 Fingering	0	55 Sudden Temp Changes	0	69 Wet Quarters
0	6 Climbing	0	20 Feeling	*	56 High Humidity	X	70 Working With Others
0	7 Jumping	0	21 Talking	*	57 Low Humidity	X	71 Working Around Others
0	8 Running	0	22 Hearing	X	58 Toxic Conditions	0	72 Working Alone
X	9 Walking	X	23 Seeing	X	59 Radiant Energy	X	73 Day Shift
X	10 Standing	0	24 Color Vision	0	60 Moving Objects	X	74 Swing Shift
X	11 Stooping	0	25 Depth Perception	X	61 Mechanical Hazards	0	75 Graveyard Shift
0	12 Crouching	#0	26	X	62 Electrical Hazards	0	76
0	13 Kneeling	0	27	X	63 Exposure to Burns	0	77
0	14 Crawling	0	28	0	64 Explosives	0	78

(X — Required by job. O — Not required by job.) *See Weather Data.

DETAILS OF PHYSICAL FACTORS: Stands and reaches forward into bin to grasp, lift, and carry steel strips weighing up to 10 pounds about 10 feet to work bench (5%). Sits at bench 30 inches high and reaches forward to handle 1-pound electrode holder during welding process and to handle light wire brush and slag hammer while cleaning weld (90%). Stands, stoops, and reaches down to handle controls to adjust electric generator (5%). Must be able to see 1/8-inch rod tip at 12 inches. No talking or hearing required. Physical factors similar on day and swing shifts.

DETAILS OF ENVIRONMENTAL FACTORS: Works day and swing shifts only, with and around others, inside Reclamation Shop (100%). Exposed to black-iron welding fumes (90%), to rays from electric welding arcs (100%), to sharp edges of materials (100%), to uninsulated parts of electrode holder (85%), and to hot metals and electric arcs (90%). Environmental factors similar on day and swing shifts.

DETAILS OF HAZARDS: Possibility of respiratory irritation from black-iron welding fumes (90%), of injury to the eyes from rays from electric welding arcs (100%)--(reduced by goggles and hood), of cuts from sharp edges of materials (100%)--(reduced by gloves), of electric shock from uninsulated parts of electrode holder (85%), and of burns from hot metals and electric arcs (90%)--(reduced by hood, gloves, and leather garments). Hazards similar on day and swing shifts.

1 Handling - One Arm: Welders with one artificial and one good arm can perform this job.

Form 2.—Physical demands analysis for the job of arc welder in the reclamation shop of Richmond Shipyard Number Three. The job is suitable for the cardiac patient whose physical capacities are analyzed in form 1. Note that each job analysis includes a description of the effects on the worker of the hazards encountered and how the hazards have been reduced by the safety engineers. (Weather data not shown.)

but for these the worker has full capacity. The job is available on the day shift. Not one of the other environmental factors for which the worker is restricted is required by the job.

The tabulation of the factors in identical pattern at the top of the forms and the use of symbols facilitates matching the worker and job. Blank space indicates the worker has full capacity, the check mark indicates partial capacity, and 0 indicates no capacity. The symbol X indicates that the factor is required by the job, and 0 means that it is not. Explanatory details are given on the forms below the tabulations.

It is interesting to note what additional physical limitations the worker with rheumatic heart disease might have and still be likely to succeed on the job of welder in the reclamation shop without aggravating his physical condition. For instance:

1. One arm, since the job requires but one good arm and an artificial arm.
2. Leg disability, since the job requires walking and standing less than one hour per day.
3. Back disability, since the job requires stooping but 5 per cent of the work period and does not require crouching, kneeling, crawling, twisting or working in a reclining position.
4. Shoulder disability, since the job does not require reaching above shoulder height.
5. Loss of fingers, since the job requires but course handling and does not require fingering or feeling.
6. Deaf-mutism, since the job does not require talking and hearing.
7. Impaired vision, since the job does not require depth perception, color vision or seeing better than 1/8 inch rod tip at 12 inches.
8. Nervous condition (when due to a fear of high places, close quarters or noise), since the job does not require these environmental factors.
9. The worker also might be a woman, pregnant or non-pregnant, young or past middle age, and perform this job successfully.

These placement possibilities are known only because the job has been analyzed. Otherwise many of the possibilities may be missed.

TRANSLATION OF CLINICAL DATA

It is realized that physical capacities may be expressed in relation to intensity, frequency and duration. Lifting and carrying have been selected as most representative of the physical capacities of the worker and space provided for expressing the effort involved as an intensity factor, so many pounds, and a frequency factor, so many times per hour. For simplicity the duration factor, or distance the weight may be carried, is not stated, but it is intended to be a reasonable distance.

Pushing and pulling present special problems because of the numerous body positions which may be required to perform these activities. Pushing or pulling 10 pounds above shoulder height may require more effort than pushing or pulling 100 pounds at waist height. No simple way of expressing capacities for these two factors has yet been devised, and it is therefore assumed that the worker should not expend greater effort in pushing and pulling than in lifting and carrying.

In respect to most of the remaining physical factors the restriction of activity, if any, concerns duration. This applies to walking or standing, for example. Provision is therefore made on the capacities form for indicating restrictions up to one third of the work period or up to two thirds of the work period. It is believed that the physician cannot estimate more closely than in thirds of the work period. Furthermore, it is believed that if the worker can perform an activity for more than two thirds of the work period he can probably perform that activity for the entire work period. Likewise, if restriction is required for less than one third of the work period he should undoubtedly be restricted completely.

The single exception in connection with the last statement is in the case in which the worker climbs, let us say, to a work place and remains there for the entire shift, climbing down at the end of the day or for luncheon or to care for personal needs. To say that the worker can do no climbing would bar him from such a job, whereas the total time required for the effort would be less than one third of the work period, perhaps 5 per cent. Special provision on the form is made for this situation.

Space is also provided on the form for additional entries on hearing, sight, other physical factors and environmental factors. For example, if a worker is restricted in respect to toxic conditions because of skin

sensitivity to certain solvents the physician should indicate the nature of the restriction.

It must be clear that the translation of clinical data into physical capacities presents many problems. No claim is advanced beyond the fact that a start has been made. For example, there may never be a categorical answer to the question of how much lifting should be allowed a specific individual with rheumatic heart disease, grade II. It has been said that the physician's judgment in each individual case may be the only criterion.[4] Up to the present, in the placement of the shipyard workers, the one question which has been constantly asked is: Does the worker's job aggravate his physical condition? If so, then he should not be allowed to continue on his present job and, if possible, should be changed to another.

In the placement of cardiac patients, four available criteria have been predominately utilized to guide the physicians at Permanente Foundation Hospitals: the electrocardiogram, 6 foot roentgenogram for heart size, physical examination of the heart, and history of previous activity. How much has the patient lifted in the past? If he is robust and has been accustomed to lifting 200 pounds without great effort, then he should be allowed to lift more now than a white collar worker with the same diagnosis. Possibly only a statistical analysis of what happens to selectively placed workers after three, six, twelve or twenty-four months will serve to improve our translation of clinical criteria into physical capacities analysis. The request has been made to the Permanente Foundation, which is engaging in industrial medical research, that funds be appropriated for extensive research in the field of measuring the physical capacities of workers. The Permanente Foundation has already granted funds for the publication of the physical demands information on the shipyard jobs in order to expedite the release of this material by the War Manpower Commission in May 1944.

With the foregoing information available concerning the worker and job, there still remains the task of matching the worker and the job. Essentially this task is the responsibility of the placement officer who uses the information supplied by the physician and the analyst.[2] Physical demands and capacities analysis may be said to be the common language of the job analyst, the physician and the placement officer. It facilitates an understanding among all three, which has been lacking heretofore but which now makes it possible for them to come together and work toward a solution of the problem of matching the physical characteristics of workers and jobs. Each has his separate task without overlapping, and each is the best qualified person for the task.

The placement officer must likewise match the skill characteristics of workers and jobs. In this task he has been aided by the development of aptitude tests and other placement technics. By careful differentiation all qualifications of a worker for a job can be classified either as a skill or as a physical capacity. It is believed that by coupling a knowledge of the physical characteristics with a knowledge of the skill characteristics the process of matching workers and jobs will be placed on a more scientific basis.

FORMER PRACTICE

Up to the present time the physician doing placement physical examinations usually has either submitted a clinical report, in which case his findings have had to be interpreted by the placement officer, or he has classified the examinee quite broadly as suitable for heavy, moderate, light, sedentary or no work. These classifications have obviously been subject to equally broad interpretation and thus to misinterpretation. At times the physician may have indicated physical restrictions, as "no climbing or running." Less frequently perhaps he has indicated environmental restrictions for the worker, as "no exposure to dust." Such restrictions have not usually told an adequate story. Likewise, in the field of job analysis the former practice has been to analyze jobs as requiring certain activities, such as walking or standing, to an extent designated broadly as none, little, moderate or great.[5] These terms have also failed to provide a basis for specific analysis. Now both physician and analyst have a formal pattern which serves to make their respective analyses complete. With specific, paralleling analyses in the hands of the placement officer his task of matching workers and jobs has been simplified and a greater measure of job success has been made possible.

Another approach to the problem of selective placement has been the preparation of job families, or lists of jobs suitable for individuals with specific handicaps, such as one-armed workers.[6] But such lists of jobs have only supplemental value. From them the placement officer attempts to select a job for the worker. If the placement is to be satisfactory, however, the worker and the job must be individually and scientifically matched none the less. The variation between individuals with identical handicaps is too great for job lists to serve more than a suggestive purpose. Furthermore, the preparation of lists of jobs performable by individuals with certain physical restrictions has the disadvantage of singling out handicapped persons as different from others. By so doing the difficulties attendant on placing such individuals on jobs may be increased.

In physical demands and capacities analysis, on the other hand, lists of the shipyard jobs will be prepared and classified according to the physical demands of the job. For example, one list will be prepared of those jobs which do not require lifting or carrying over 25 pounds. This list of jobs will likely be suitable for those workers whose lifting and carrying capacity is limited to 25 pounds. And again, another list will contain those jobs which require lifting and carrying over 100 pounds. This list will suggest suitable jobs for fully able bodied workers. In short, twenty-five such lists will be prepared and will represent a sifting of the shipyard jobs through a number of screens for the purpose of assisting placement officers in locating jobs which match the physical capacities of individuals, fully able bodied or physically limited. Such assistance is particularly helpful in a situation where preplacement physical examinations are given. Then all workers can be placed in accordance with their physical capacities, including the able bodied worker on the energy consuming job.

4. Kessler, H. H.: Accidental Injuries, Philadelphia, Lea & Febiger, 1941, chapter 6.

5. Special Aids for Placing Navy Personnel in Civilian Jobs, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C., May 1943. Occupations Related to Basic Occupations in Synthetic Rubber Monomer Production, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C., July 1943.

6. Job Families—Handicapped Series, Division of Occupational Analysis and Manning Tables, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C. Operations Manual for Placement of Women and the Physically Handicapped, United States Civil Service Commission, Washington, D. C., November 1942. Harvey, V. K., and Luongo, E. P.: Physically Handicapped in Industrial Establishments of the Government: Possibility for Their Increased Placement, J. A. M. A. **121**: 100 (Jan. 9) 1943.

There is thus evolved a new series of job families which are arranged according to the physical demands of jobs, thus avoiding the disadvantages of previous lists which were arranged according to the physical handicaps of workers. Depending on the physical demands of each job, all shipyard jobs will be listed under one or more of the following headings:

JOB FAMILIES BASED ON PHYSICAL DEMANDS

1. Jobs which do not require lifting or carrying.
2. Jobs which do not require lifting or carrying over 25 pounds.
3. Jobs which do not require lifting or carrying over 50 pounds.
4. Jobs which do not require lifting or carrying over 75 pounds.
5. Jobs which do not require lifting or carrying over 100 pounds.
6. Jobs which require lifting and carrying over 100 pounds.
7. Jobs which do not require climbing.
8. Jobs which do not require climbing over 5 per cent of work period.
9. Jobs which do not require jumping or running.
10. Jobs which do not require walking or standing but do require sitting.
11. Jobs which do not require walking or standing over one third of work period.
12. Jobs which do not require walking or standing over two thirds of work period.
13. Jobs which do not require stooping.
14. Jobs which do not require crouching.
15. Jobs which do not require kneeling, crawling or reclining.
16. Jobs which require handling with one hand and arm only.
17. Jobs which do not require reaching above shoulder height.
18. Jobs which do not require talking and hearing.
19. Jobs which do not require a high degree of visual acuity.
20. Jobs which do not require color vision.
21. Jobs which do not require depth perception.
22. Jobs which are being performed by women at present.
23. Jobs which require being inside 90 to 100 per cent of time.
24. Jobs which do not require sudden temperature changes.
25. Jobs which do not require wet quarters.

There is nothing in physical demands and capacities analysis which singles out the handicapped. The technic applies equally to all persons—male or female, young or old, able bodied or physically limited. All workers are analyzed in respect to physical capacities as objectively as all jobs are analyzed in respect to physical demands. This is as it should be, for the difference between the able bodied and the handicapped is after all but one of degree.

Besides supplying the technic for utilizing individuals who may range from those with severe physical limitations to the most able bodied, it is not to be overlooked that physical demands and capacities analysis is also being developed to assist in the placement of individuals with nervous disorders. One of the chief factors in the job adjustment of such people is the proper working environment. With the analyst preparing specific information on the environmental demands of jobs, and with the physician recommending the proper working environment for such persons, the placement officer is then in a position to place them on jobs with a suitable working environment.

PREPLACEMENT AND REPLACEMENT

Although developed as a transfer or replacement examination for Kaiser workers at the Richmond Shipyards, physical demands and capacities analysis is equally adapted for preplacement technic. A criticism heretofore of the usual preplacement physical examination procedure, often made by labor unions, is the revealing to management or to the placement officer of the clinical diagnosis. One notable effort in the past to avoid this consisted in supplying management with a summarized version of the clinical findings.[7] In physical demands and capacities analysis no diagnosis whatever is required, since specific information is given concerning a worker's physical and environmental capacities. The placement officer does not need to know, for example, what illness is behind a weight lifting restriction. With information available concerning the physical demands of the job and the physical capacities of the worker the placement officer has all the information he needs to place the worker. It is hoped that the omitted diagnosis may remove one objection of labor unions to the preplacement physical examination and tend to make such examination more generally available to shipyard workers on the Pacific Coast.

TABLE 1.—*Placement Breakdown, All Richmond Shipyards, Oct. 1, 1943 Through Dec. 31, 1943*

Physician's Recommendation	Richmond Shipyard Number					
	One	Two	Three	Four	PF	Total
1. Selective placement						
a. Placed	134	194	124	17	47	516
b. Not placed *	48	95	26	11	18	198
c. Not interviewed †	6	59	35	2	12	114
d. No information available from placement officer	5	17	0	2	0	24
Subtotal	193	365	185	32	77	852
2. Work release	38	73	67	8	17	203
Total	231	438	252	40	94	1,055

* Not placed: Because of no suitable job openings, or because worker refused job due to lower pay involved, expense of changing unions, dissatisfaction with new type of work or dissatisfaction with new job location.

† Not interviewed: Because worker failed to return to yards.

In a preplacement physical examination situation the physician records the clinical findings on the usual physical examination record used by the company. The physician then completes the physical capacities analysis from this record and whatever other clinical information is available.

On release of the physical demands information on shipyard jobs, physicians serving the workers at the Richmond Shipyards are to be supplied with this publication so that they will be able to determine accurately at any time the physical requirements of the worker's job and the need for transfer. The job analyses include for each job a description of the effect on the worker of the hazards encountered and how the hazards have been reduced by the safety engineers (form 2). The physical capacities of the workers who have been transferred will be reevaluated from time to time, and transfer to another job requiring greater or less physical effort will be recommended as indicated by the examination.

PLACEMENT EXPERIENCE

The suggestion was previously made that the ultimate evaluation of the physician's task of converting clinical data into physical capacities analysis may be a statistical analysis of the results obtained. Accordingly,

7. Physical Examinations of Industrial Workers, Madison, Wis., Industrial Commission of Wisconsin, 1939.

and even though the selective placement program at the Kaiser Shipyards has been in effect but a short time and was started before the job analyses were available, a statistical summary was undertaken. On the whole the findings are encouraging, as shown in tables 1, 2 and 3.

TABLE 2.—*Disability Breakdown, All Richmond Shipyards, Oct. 1, 1943 Through Dec. 31, 1943*

Disability Breakdown	Selective Placement Recommended by Physician	Work Release Recommended by Physician	Total
Cardiovascular	161	41	202
Respiratory	127	70	197
Gastrointestinal	30	12	42
Orthopedic	256	33	289
Conjunctivitis and dermatitis	104	21	125
Hernia	44	2	46
Pregnancy	24	2	26
Miscellaneous	106	22	128
Total	852	203	1,055

It is to be noted that among the workers whose placement success was studied in detail there were only three unsuccessful placements due to physical factors (table 3). These include, first, a welder with allergic conjunctivitis. He was given the job of flanger, where he was still exposed to welding fumes which aggravated his condition. Second, a woman scaler with cramps of the right wrist and shoulder sustained from using a vibrating tool was given the job of laborer, which resulted in accentuation of the pain. Third, a pipefitter on the graveyard shift complained of inability to sleep during the daytime. He was changed to the day shift without relief of his insomnia.

It is felt that the relatively few unsuccessful placements due to physical failure speak well for physical demands and capacities analysis as a placement technic. If used in a preplacement program as well as in a replacement program, the technic would undoubtedly prove of even greater value.

COORDINATION OF PROGRAM

Also the selective placement program has served a secondary purpose. It has been the justification for management, safety engineers, personnel officers, training coordinators, counselors, job analysts and physicians to get together in conference, something which had never happened before the program was effected. One such conference recommended that management establish a uniform policy for the shipyards whereby women employees who become pregnant may continue working as long as seven months at suitable employment within their craft, depending on the physician's physical capacities analysis for individual cases.

The Kaiser Shipyards are now planning an extensive training program for war veterans, and the physical demands and capacities analysis technic is to be made a part of this program. It is hoped that the Army and Navy may be encouraged to use the physical capacities analysis technic for evaluating the physical capacities of discharged veterans so as to facilitate veterans' employment in industries adopting physical demands and capacities analysis. The technic has already been the subject for comment in literature reaching industrial management.[8] It is hoped also that arrangements may be made for exchanging information concerning official industrial placement technics for war veterans with our Allies, notably England and Russia.

It becomes increasingly clear that when an industrial placement program is analyzed on the basis of its physical and environmental factors the opportunity is presented for the application of all that medicine has taught concerning the evaluation and preservation of physical health, and that industrial hygiene has taught concerning the control of environment. Forward looking placement programs will interact with industrial medicine and hygiene to their mutual advancement, with implications for better medicine and employment practice now and in the postwar world.

SUMMARY

In a program of physical demands and capacities analysis a new technic has been evolved in which a set of physical and environmental factors forms a basic pattern which the job analyst uses to analyze the physical demands of jobs, the physician uses to evaluate the physical capacities of workers, and the placement officer uses to match the physical capacities of workers and the physical demands of jobs.

Some advantages of the program are that: It specifically defines the physical capacities of workers and the physical demands of jobs. It overcomes shortcomings of previous approaches, such as the classification of physical capacities in terms of sedentary, light, moderate and heavy work and the classification of physical demands in terms of none, little, moderate and great. It is adapted for preplacement and replacement evaluation. It presents a positive approach, emphasizing physical capacities, not medical diagnoses or physical handicaps. It preserves the confidential doctor-patient relationship. It considers physical and environmental factors. It is adapted for the selective placement of all workers—male or female, young or old, emotionally stable or unstable, able bodied or physically limited—and particularly for the placement of the war disabled.

TABLE 3.—*Study of All Day Shift Placements Made in Richmond Shipyard Number Three* Oct. 1, 1943 Through Dec. 31, 1943*

Placement Classifications	Disability Breakdown: Cardiovascular	Respiratory	Gastrointestinal	Orthopedic	Conjunctivitis and Dermatitis	Hernia	Pregnancy	Miscellaneous	Total
Successful placement [a]	7	12	1	10	1	1	1	3	36
Unsuccessful placement due to skill failure [b]	..	1	..	1	..	..	..	..	2
Unsuccessful placement due to physical failure [c]	..	..	..	1	1	..	..	1	3
Left company because of other causes [d]	..	3	..	8	3	2	1	10	27
Total	7	16	1	20	5	3	2	14	68

* During Jan. 26-29, 1944 the placement officer personally interviewed both worker and supervisor on each person still employed and checked with the personnel department on each person no longer employed. This information was classified as follows:

a. Successful placement: Worker is fulfilling the skill and the physical requirements of the job without aggravating his physical condition.
b. Unsuccessful placement due to skill failure: Worker failed to fulfil the skill requirements of the job (having fulfilled the physical requirements without aggravating his physical condition).
c. Unsuccessful placement due to physical failure: Worker failed to fulfil the physical requirements of the job without aggravating his physical condition (having fulfilled the skill requirements).
d. Left company because of other causes: Worker fulfilled the skill and the physical requirements of the job without aggravating his physical condition but left the company after being selectively placed for such reasons as to return to farm, to return to business, transportation difficulties, domestic problems and personal conflict with supervisor.

8. Ex-Service Men: New Manpower for Industry, Mod. Indust. 6: 44 (Nov. 15) 1943.

IS THE PRESENT SYSTEM OF OCCUPATIONAL DISEASE COVERAGE ADEQUATE?

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Adequate occupational disease coverage must be discussed under three headings: (*a*) What is the present system? (*b*) What is adequate coverage? and (*c*) What is an occupational disease?

As far as the present system of coverage is concerned, we know that some states have no coverage of any type; some include all occupational diseases, while the remainder have adopted the schedule system. Obviously, with such a variation in the methods employed, adequate coverage in America does not exist despite the fact that in principle the workmen's compensation act was intended to cover all industries and all workmen. According to the latest statistics of which I am aware, not more than 40 per cent of the total gainfully employed workers are actually protected. In some instances this is due to a failure in coverage provisions which exclude, for example, the casual worker or the domestic. In other instances it is due to certain groups refusing to elect to come within the provisions of the act, as, for example, the farmers.

As to the differences between the schedule system and the all inclusive system, I need not enter into any discussion. At this same meeting last year Mr. Henry D. Sayer outlined the demarcations very well. Such descriptions will also be found in almost every annual bulletin of the United States Department of Labor, where the minutes of the sessions of the International Association of Industrial Accident Boards and Commissions appear. I wish only to go on record as believing that the schedule system is not desirable. While it may be true that any excluded occupational disease can be included in the schedule at the next legislative session, there is not sufficient assurance that it will be. If the purpose of the act is to compensate all workmen, it should do so from its inception and not exclude any one disease. It should not be necessary for one or more workmen to become martyrs in order that the law may function for those subsequently exposed.

By objecting to the schedule system I do not claim the all inclusive system to be without fault; nor can its most loyal adherents do so. The primary objection resides in the very features which the framers of the compensation act tried to avoid. The originators hoped to dispense with prolonged and expensive litigation. Mr. Robert Watt has stated that the purpose of compensation is hindered by the "cleverest and shrewdest lawyers that the insurance companies can produce." I don't believe this to be the case. In my experience I have never found an attorney for an insurance company express any desire to contest a claim when informed that the facts of the case sustained the workman. On the other hand, it is the unscrupulous lawyer representing the claimant who persists in litigation regardless of the merits of the case in order that he and not the poor workman may gain. The all inclusive system permits the appellate procedure, which is a distinct disadvantage to the injured worker, since it involves all of the evils of the common courts. On page 128 of Bulletin No. 672, issued by the United States Department of Labor, we find the words "Those who reap a profit from litigation have in many localities led workers to overestimate the value of their constitutional right to court controversy in compensation cases, and the worker has seldom examined the argument either as to its applicability to compensation procedure or the cost of such rights to him." Without further discussion of the all inclusive system it can be stated that while it is the method best designed to protect the worker, it fails of its purpose because its scope is such as to permit vacillation. This is true whether we attribute it to the greed of the insurance interests, to the worker's legal "ill adviser" or to the incompetence of the medical profession.

Is it possible that in trying to correct the faults too frequently attributed to administrative weakness, the employer's greed or the employee's ignorance we are overlooking the chief stumbling block to equitable administration of the act as it pertains to the occupational diseases, namely the medical profession? I feel certain that most of the difficulty in the just dispensation of occupational disease claims is directly due to incompetent medical opinion. From this indictment I exclude the experienced industrial physician. Day in and day out this group render an interested, honest and painstaking service to the workers of America. I defy any one to challenge the validity of that statement other than to admit the occasional exception common to all rules.

The truth is that, in matters of industrial medicine, medical incompetence is found in the frock coated, uptown doctors who have never condescended to cross the tracks into the dirty atmosphere of an industrial plant; who mentally have never permitted their minds to become soiled by reading books or articles pertaining to this type of medicine. Too frequently these gentlemen are specialists who represent the best thought in medicine, who teach in our medical schools and whose renown is unfortunately recognized by the accident commissions, but they have no more knowledge of the occupational diseases than I have of Polynesian folklore. Let me give you an example of erroneous presumption, which can be duplicated a thousandfold in the files of any accident commission:

A middle aged man was engaged for four months in an operation which involved the use of carbon tetrachloride. It was a closed process done in the open yard. One night he suffered an attack of chest pain which was diagnosed as due to coronary sclerosis and substantiated by the electrocardiogram. A heart specialist whom he consulted noted in the occupational history the use of carbon tetrachloride. He informed the patient that possibly his heart condition was due to this exposure. Although the workman had not previously considered his occupation as the cause of his disability, he naturally filed a claim before the industrial accident commission. When questioned as to the basis for his opinion, the doctor stated that somewhere he had read an article which mentioned certain solvents such as carbon tetrachloride as a possible cause of heart disorder. There you have a perfect example of the type of loose thinking which is permitted in litigation of occupational disease claims. The article [1] in question suggested that gases from certain solvents might be capable of inducing ventricular fibrillation. Note the fallacy of the assumption on the part of the heart specialist. The author of the article had in mind acute

Read before the Sixth Annual Congress on Industrial Health, Chicago, Feb. 16, 1944.

1. Geiger, A. J.: Cardiac Dysrhythmia and Syncope from Therapeutic Inhalation of Chlorinated Hydrocarbons, J. A. M. A. **123**: 141-144 (Sept. 18) 1943.

exposure to excessive concentrations as it might be related to disturbance of the pacemaker of the heart. Neither by word nor by insinuation did he imply that sclerosing of the coronary vessels could occur. As for the patient, he was never exposed to any carbon tetrachloride and at no time exhibited a single sign or symptom of this disease.

It has frequently been stated that the occupational diseases cannot be defined. Dr. Raymond Hussey committed himself to that point of view at this same meeting one year ago and then proceeded to describe beautifully the characteristics of an occupational disease. I fail to comprehend why each occupational disease cannot be defined within acceptable limits. On what basis have pneumonia, diabetes, syphilis, scarlet fever and most of the other diseases been established? Does not the student in medical school recognize the earmarks of a cardiac syndrome because through the years the MacKenzies, Lewises and Whites have defined it for him? Is there any reason why experience, established authority, proved etiology, pathology and the clinical picture cannot be applied to the occupational diseases? Is there something inherently different about them which defies delineation?

The description which Ramazzini gave to certain trade diseases more than a century ago has not been greatly improved on through the passing years. But when newer processes induced new types of ill health in workmen the Hamiltons, McCords, Hayhursts, Smythes, Kehoes and others whom I should like to mention have described the resulting entities in a manner no less accurate than the customary textbook description of the communal diseases. Because of the investigative efforts of those who have preceded me, I feel I can be as certain of my diagnosis of an occupational disease as I can of a communal disease. Indeed, in most instances the industrial physician has access to more accurate information than the general practitioner has in his field. By determining the presence of a noxious agent, by measuring its degree of concentration, by noting the length of exposure, by using laboratory aids and then by evaluating all these facts with the clinical picture, one can arrive at a diagnosis with a high degree of accuracy.

In summary, an attempt to answer the question found in the title of this paper warrants the assumption of the following facts:

1. A system of complete coverage for the occupational diseases is desirable and is the only system which will fulfil the philosophy of workmen's compensation.
2. The occupational diseases are definite entities and are as definable as the nonindustrial diseases, if not more so.
3. The reason why they have appeared vague and ambiguous is the disinterest and inexperience of the medical profession.
4. Administrators of the act render their decisions on the basis of the evidence presented. If the medical evidence is contrary and illogical, equitable decisions cannot be expected.
5. Insurance companies and employers will accept the complete, all inclusive coverage system if assured that medical opinion is competent and not of the vacillating type now so prevalent. Let those few companies who may object stew in their own prejudices.

If a complete coverage system is the only equitable form of workmen's compensation, how can it be made a workable reality?

1. This can be brought about by medical education of the student and practicing profession. That some steps are being taken in that direction is apparent, but it is more apparent that they are not very bold, accelerated steps. The Council on Medical Education and Hospitals nods its head in affirmation of this need but takes no concerted action. Even as late as one year ago the Advisory Board of the Medical Specialties stated that there was no such thing as a specialty of "industrial medicine." Such a statement is contrary to the nationwide demand for and appraisal of industrial medicine. Apathy and indifference on the part of those who control medical education is retarding the progress of industrial medicine. As long as the profession at large remains untutored, any type of compensation insurance will misfire in its true purpose.

2. The Committee on Workmen's Compensation of the Council on Industrial Health could gain certain of the objectives expressed in this paper if it joined efforts with the International Association of Industrial Boards and Commissioners, with insurance groups and with labor to formulate unified action regarding the unsolved problems in workmen's compensation. There is too great a variance in the laws of the various states as to the meaning of the act and as to its administration. While it is true that the doctor should not attempt to be a lawyer, certainly the law needs medical aid in determining a more adequate, sane and just attitude toward an injured or ill workman. Here is a challenge for leadership, and the profession should assume it.

It has been repeatedly pointed out that the toll of killed and injured in industry exceeds that of the war casualties. How was it possible to assemble an organization of complete medical care for war in such a short time? Because an aroused profession bent its utmost effort to meet the challenge. But what is the difference between the war wounded and the industrially injured? Should not the promotion of health and the saving of life be the same in the two instances? Cannot the profession be aroused to recognize the need to educate all doctors regarding industrial medicine? I think it can, and now is the time. Only when this occurs will there be an intelligent dispensation of medical care in industry and an equitable administration of workmen's compensation.

Golden State Hospital, 423 Towne Avenue.

Biblical Literature Pertaining to Medicine.—The ancient Jewish conception of disease clung closely to that of the Babylonians, Assyrians and Egyptians. They believed that illness and epidemics were the manifestations of the wrath of God, and they sought relief in prayer, sacrifice and exemplary life. But unlike their neighbors they left no medical treatises or documents. Biblical literature, however, contains a few scattered references pertaining to medicine in general, some of which are of a gynecological nature. Of greatest interest in the Old Testament are the laws referring to social and personal hygiene—laws devised to serve the community and the race. In this branch of medicine, in prophylaxis and sanitation, they excelled. Striking was the intelligence displayed by Jehovah in the promulgation of sanitary laws intended for the protection of the children of Israel. In matters other than religion the Egyptians had long supplied them with a basis for their culture. Moses is said to have learned his medicine in Heliopolis. Solomon was skilled in the medical magic of the Nile, and the Prophets were not wholly devoid of the knowledge of medicinal herbs, although some of their cures were miraculous. Elijah brought to life a child apparently dead, while his disciple Elisha performed a similar cure. Medicine was an integral part of the religion of Israel; rabbis and physicians frequently met in conclaves and mingled in learned discussions on medical subjects. It is remarkable that they recognized symptoms as a manifestation of inward changes (internal pathology)—a view which was not clearly voiced by the Hippocratic School and only vaguely referred to by Galen.—Ricci, James C.: The Genealogy of Gynaecology, Philadelphia, Blakiston Company, 1943.

Clinical Notes, Suggestions and New Instruments

PENTACHLORINATED NAPHTHALENES IN INDUSTRY

LAWRENCE H. COTTER, M.D., NEW YORK

In normal times an extensive outbreak of poisoning among workmen engaged in a chemical procedure could be, and would be, met by closing down the plant and total elimination of the hazard until a substitute process had been found. Under the exigencies of war it is not possible to relegate such problems to the field of time-consuming research. No factory engaged in a war contract can suspend operations even for an hour. Workmen cannot be transferred or laid off in numbers which interfere with production schedules and must be studied on the job as far as humanly possible. The plant doctor is liable to be overwhelmed with minor surgery, and workmen often see their own physician "on the outside" for persistent medical ailments. These doctors have no means of knowing the carefully guarded formulas of the compounds which their patients handle; nevertheless in the ensuing series of cases the general practitioner was able to diagnose liver damage in at least 1 instance in which his observation might have been the means of avoiding a fatality.

With the use all over the country of new and medically unknown compounds, the cooperation of the family physician is essential in recognizing serious symptoms which do not appear on the surface to be related to any of the usual industrial hazards.

The pentachlorinated naphthalenes were studied at a plant where about 2,500 men were engaged, in three shifts, in manufacturing wire cable for the Navy. The process consisted in

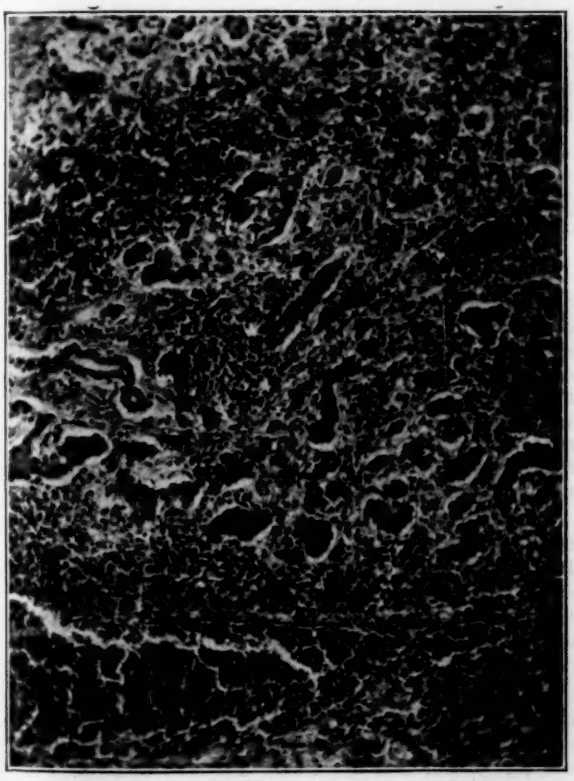

Fig. 1.—Section of liver, × 110, showing complete absence of liver cells, bile duct proliferation, hemorrhage and inflammatory reaction.

coating the wire with a toxic substance which rendered it heat resistant and water repellent to a degree unobtainable by any other method. The product was essential to the war effort, and no substitute could be made available under a year. Of the 450 men who were easily shown to be sensitive on exposure to the chemicals, it was necessary to find means of weeding out those to whom it constituted a serious and, in 7 cases, a fatal hazard. In the following cases the histories have been summarized and the chemical findings tabulated for convenience.

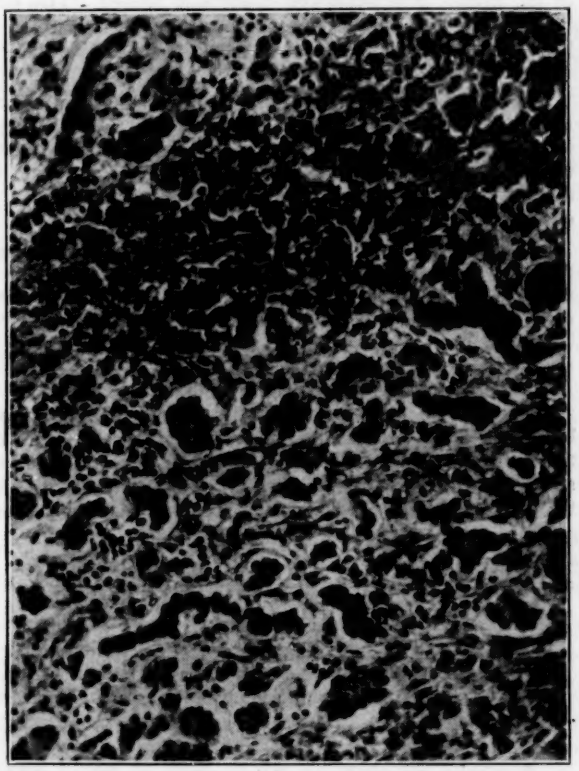

Fig. 2.—Section, × 230, showing that all liver cells have disappeared. Proliferation of bile ducts is the only evidence of regeneration in this area. No nodules of liver cells are included.

CASE 1.—C. M., an Italian aged 58, developed drowsiness, indigestion, frequency of urination and a papular rash of the face and hands after three months' exposure. When seen he was deeply jaundiced, dyspneic and unable to walk without support. The respiratory rate was 25 per minute. The blood pressure was 100 systolic, 60 diastolic. Liver dulness was diminished. The urine showed 1 plus albumin and 4 plus bile. The stools were clay colored. The blood cell count was negative. Subsequently the patient went into deep coma with incontinence of urine and feces and died five months after onset.

CASE 2.—H. R., an American aged 43, developed cramps and nausea after seven weeks' exposure. He complained that "even thinking about the compound" made him retch. When seen he had a temperature of 101 F. and severe jaundice. He showed areas of depigmentation on the wrists. Liver dulness was diminished, the urine bile was 4 plus, the stools were clay colored and the blood cell count was low in granulocytes. The patient was hospitalized and was discharged cured.

CASE 3.—C. K., a Negro aged 26, developed dizziness, pain in the back and acute nausea whenever he entered the plant and smelled the chemical after three months' exposure. He showed no jaundice, no liver dulness and no bile in the urine. He had depigmentation and depilation of his arms and legs. The stools were normal. The blood cell count showed slight anemia and low granulocytes. He was hospitalized and discharged cured.

CASE 4.—M. C., an Italian aged 43, developed precordial pain, a papular rash on the exposed surfaces and nausea as soon as he began to work with chemicals. After a year his symptoms were intensified and he became jaundiced, but the condition cleared up when he was transferred to a department where he did not handle the wire. His jaundice recurred when put on his original job, and he was treated at home by the family doctor for two months. He was normal when seen.

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

Case 5.—F. C., an American aged 28, developed extreme nervousness, loss of appetite and abdominal pain after a year's exposure. He showed edema below the eyes, a papular rash of the arms and a peculiar bronze pigmentation of the upper part of the face. There was no jaundice, liver dulness or bile in the urine. The blood cell count was normal. The patient had a masklike facies and tremor of the hands which persisted for some months. The basal metabolic rate was normal. He was treated and discharged cured.

Case 6.—An American aged 31 developed severe upper abdominal pain after handling wire, originating in the H. W. plant at the shipyard where he was employed. The onset occurred three months after exposure. He showed no jaundice, liver dulness or bile in the urine. He had a typical papular rash of the forearm. He was treated and discharged cured.

Case 7.—A. S., an American aged 50, developed abdominal pain and a papular rash after three months' exposure. He was admitted to the Presbyterian Hospital, where he showed jaundice, clay colored stools and bile and casts in the urine. The blood cell count was negative. He was discharged at his own risk. He died six months later.

The pathologic report by Dr. Sproul in cases 1 and 7 was as follows: No entirely normal liver parenchyma was found, but the sections presented a variegated appearance. In areas there was a complete absence of liver cells, with collapse of the stroma to half its original space. The central portions of the lobules were hemorrhagic; the periphery showed prominent bile duct proliferation but no liver regeneration in the areas lacking any parenchyma. Elsewhere there was only partial loss of liver cells, and those remaining had proliferated to form nodules without the usual lobular architecture. Necrotic liver cells no longer remained by the time these patients were examined, and inflammatory reaction was very slight. A few eosinophils were found among lymphocytes and polymorphonuclear leukocytes. Bile plugs in distended canaliculi were an uncommon finding. No changes were seen in the kidneys. The spleen showed evidence of mild portal obstruction.

Results of Tests in Seven Cases of Poisoning

Case	Cephalin Flocculation	Blood Sugar, Mg. per 100 Cc.	Phosphorus, Mg. per 100 Cc.	Phosphatase, Bodansky Units per 100 Cc.	Uric Acid, Mg. per 100 Cc.	Cholesterol, Mg. per 100 Cc.	Bilirubin, Mg. per 100 Cc.	Total Protein, per Cent	Albumin, per Cent	Globulin, per Cent	Euglobulin, per Cent	Carbon Dioxide Content, Volumes per Cent	Chloride (as Sodium Chloride), Mg. per 100 Cc.	Sodium, mEq. per Liter	Nonprotein Nitrogen, Mg. per 100 Cc.
1 a	+	102	3.6	9.2	2.2	303	21.2	5.7	2.6	3.1	0.5	50.7	628	131.8	30
b	++++	...	3.2	6.5	...	80	22.5	5.9	2.1	3.8	0.6				
2 a	0	88	3.7	5.3	3.9	190	7.5	6.4	3.8	2.6	0.4	....	...	.....	22
b	..	...	...	6.7	...	242	0.2								
3 a	0	96	4.1	2.9	2.9	170	0.2	7.0	4.9	2.1	0.2	....	...	.....	24
5 a	0	102	3.3	2.4	4.9	145	0.2	6.5	4.5	2.1	0.3	65.0	575	137.5	28
b	..	...	...	...	...	185									
6 a	0	65	5.1	2.1	2.2	290	0.9	6.8	4.3	2.5	0.9	....	...	.....	..
b	..	102	...	...	...	186	0.3	...	...	...	0.2				
7 a	+	...	3.2	15.6	...	500	11.6	6.6	3.8	2.8	...	....	...	.....	..
b	+++	...	2.5	21.3	...	293	....	6.7							

a signifies value when first seen; b signifies value when discharged.

From the foregoing cases selected from a group of 15 showing one or more signs of definite liver damage, it will be seen that the most constant early symptom of the condition was a papular rash of the exposed surfaces in white men and a corresponding depigmentation in the Negroes. The onset was usually within a few months of starting work and cleared up equally rapidly if the patient was removed from contact with the chemical as soon as the gastrointestinal symptoms began. When exposure to the hazard continued, actual changes took place in the liver and we found alterations in the serum cholesterol, serum phosphatase, serum bilirubin and serum proteins. The cephalin flocculation tests gave no decisive results until late in the disease.

It is abundantly clear that no laboratory test can be substituted for a careful history of the patient's symptoms, including the intense revulsion to the smell of the chemical, and a physical examination for signs of jaundice and diminished liver dulness. Such an investigation will determine the course of the disease long before the chemical findings become decisive.

TRAUMATIC AVULSION OF ENTIRE PENIS (BOTH CORPORA CAVERNOSA AND URETHRA) AN INDUSTRIAL INJURY

G. D. Delprat, M.D., San Francisco

Recent articles [1] have drawn attention to the injury of traumatic avulsion of the skin of the penis and/or scrotum as a result of clothing having been caught in machinery. A search through articles here available has failed to elicit any case in which the entire penis was torn off. The following is the history of such a case:

History.—A. B., a man aged 42, a tractor driver, on May 6, 1938 was driving a tractor on a ranch 45 miles north of San Francisco and was thrown backward from the seat, landing on the universal joint when the tractor bumped into a ditch. The lower part of the patient's trousers was caught in the universal joint and immediately wrapped around the shaft. At the same time his penis was caught in the gears and torn out. The patient walked about a mile to the ranch house, during which time he states that there was considerable bleeding. From the ranch house he was immediately taken by automobile into San Francisco and was first seen when he arrived at St. Luke's Hospital at about 6 p. m., roughly three hours after the injury. The patient was taken to the operating room immediately and the clothing removed. There were no dressings over the seat of injury.

Examination.—There was a circular opening in the skin overlying the pubis about 1 inch in diameter. The skin edges were sharply delimited as if cut with a knife. The penis was missing. The entire pubis was greatly distended with blood and resembled in appearance the female mons. A blood clot was protruding through the opening in the skin. There was no hemorrhage in or injury to the scrotum. The scrotum was not particularly elongated, nor was it unusually small. There was but little swelling or discoloration in the perineum.

Treatment.—The patient was placed in the lithotomy position, the pubis shaved and cleaned, and blood clot irrigated out. Passing the finger through this opening made palpation of the entire perineum easily accomplished, and the bare surface of the two pubic rami immediately were encountered. The scrotum was elevated and a medial, longitudinal incision made in the perineum. When the skin edges were opened a large cavity containing blood clot was entered. In washing out the blood clot, the entire anatomy was visible; the two pubic rami were visible and still had attached to them ragged portions of the corpora; the urethra apparently had been torn out just below the urogenital diaphragm, and a few strands of tissue containing mucous membrane on one surface were noted. By careful probing along the mucous membrane surface of such strands it was possible to insert a curved clamp through the prostatic

From the Surgical Service of Dr. Alanson Weeks, M.D., St. Luke's Hospital.

Drs. Lionel Player and Albert Davis gave advice, suggestions and assistance during the treatment of the patient.

1. Judd, E. S., Jr., and Havens, F. Z.: Traumatic Avulsion of the Skin of Penis and Scrotum, Am. J. Surg. **62**: 246 (Nov.) 1943.

urethra into the bladder. The clamp was followed by a self-retaining catheter. The perineal wound was packed with petrolatum gauze and the pubic wound was covered with petrolatum gauze. Blood count revealed 4,460,000 red cells, 75 per cent hemoglobin, 15,200 white cells and 82 polymorphonuclear leukocytes.

The patient made an uneventful recovery from this operation. The catheter was changed from time to time as necessary and cleaned of urates and other sediments. During his convalescence the patient was amazingly apathetic regarding the loss of this important structure. When sympathy was expressed, he stated that he had six children and that he had "done his duty" and appeared to be no more disturbed about the matter at any later time. He was not in the slightest introspective.

Commencing on May 23, 1938, preparations were made to reconstruct a pendulous penis. To this end a tube graft was outlined on the left lower abdomen with skin lining. This was accomplished through several stages, and eventually a graft of about 10 inches in length and 1½ inches in diameter was completed with complete skin lining. It was planned to detach the lateral end of this skin graft and reopen the wound and suture it beneath the perineal skin to the opening of the urethra. This procedure certainly appeared feasible and would have saved the patient the embarrassment of having to sit down to urinate. However, during the various operations necessary for preparation of this tube graft the patient became progressively more disinterested and by August 1939, when final procedure was contemplated, he refused to submit to any further "cutting."

The patient still has a perineal urethra, which, strangely enough, does not appear to require dilation. He has perfect urinary control. Across the lower part of the abdomen he is wearing a tube graft which is now a useless adornment and which he refuses to have placed where I wish to place it, nor will he submit to having it removed entirely, thus spoiling a most interesting experiment. The case being of industrial character, naturally there is some interest in its disposition through the state industrial accident commission. The patient was given a continuing award for further treatment, should such be required. The industrial accident commission considered him to have 51 per cent disability, entitling him to two hundred and four weeks' compensation. The expenses to date to the insurance carrier, including paid-up compensation, medical and hospital bills and other incidentals, is about $8,000.

Fitzhugh Building.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTIONS WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

ESTROGENIC SUBSTANCES (See New and Nonofficial Remedies, 1943, p. 401).

The following additional dosage forms have been accepted:

CHEPLIN BIOLOGICAL LABORATORIES, INC., Syracuse, N. Y.

Solution of Estrogenic Substances (in oil) with Benzyl Alcohol 3%: 10 cc. and 30 cc. vials, each being available in potencies containing the equivalent of 2,000 international units per cubic centimeter, 5,000 international units per cubic centimeter, 10,000 international units per cubic centimeter or 20,000 international units of estrone per cubic centimeter in sesame oil.

SHARP & DOHME, INC., Philadelphia

Ampuls Sterile Solution of Estrogenic Substances (in oil): 1 cc. size containing the equivalent of 2,000 international units per cubic centimeter, 5,000 international units per cubic centimeter or 10,000 international units of estrone per cubic centimeter in peanut oil.

Capsules Estrogenic Substances (in oil): 1,000 international units, 2,000 international units or 4,000 international units of estrone in peanut oil.

Council on Foods and Nutrition and Council on Industrial Health

THE FOLLOWING RESOLUTION PREPARED BY THE COOPERATIVE COMMITTEE ON NUTRITION IN INDUSTRY, WHICH CONSISTS OF DRS. RUSSELL M. WILDER, JAMES S. McLESTER AND GEORGE R. COWGILL REPRESENTING THE COUNCIL ON FOODS AND NUTRITION AND DRS. CLARENCE D. SELBY, LEVERETT D. BRISTOL AND ANTHONY J. LANZA REPRESENTING THE COUNCIL ON INDUSTRIAL HEALTH, HAS BEEN ADOPTED BY THE TWO COUNCILS AND PUBLICATION AUTHORIZED.

GEORGE K. ANDERSON, M.D., Secretary.
CARL M. PETERSON, M.D., Secretary.

NUTRITION IN INDUSTRY

The committee applauds the progress made to date in the development of the government program for increasing in-plant feeding wherever on-the-job feeding can be shown to be practical and feasible. It finds little to criticize and much to commend in the program to improve the nutritional standards of food served in such establishments and by educational effort to raise the nutritional standards of meals which are secured by the workers in their homes or carried as lunches to their work. It is particularly pleased to learn of the cooperative activities of the various agencies of the government represented on the Interagency Committee on Food for Workers and, in particular, to learn that the War Manpower Commission and the War Production Board are prepared to make available the personnel and materials necessary for establishing and maintaining restaurants in plants. It will view with approval adoption by the Office of Price Administration of the proposed differential treatment of feeding establishments catering to workers in heavy industries. It concurs in the expression of opinion prepared by the National Research Council's Committee on Nutrition of Industrial Workers Jan. 26, 1944 and approved by the Food and Nutrition Board Jan. 28, 1944 in reply to the questions submitted to the chairman of that committee by the Secretary of the Council on Foods and Nutrition, A. M. A. It approves the standards for preparation and service of food in in-plant feeding as summarized in the statements quoted from the "Manual of Industrial Nutrition," prepared under the Nutrition and Food Conservation Branch of the Food Distribution Administration. The Council further urges that all physicians engaged by industries cooperate as fully as possible with the regional representatives of the Civilian Food Requirements Branch, Office of Distribution, War Food Administration, in the development of the government program for improving the nutrition of workers, that plant physicians make every effort to secure in-plant feeding establishments wherever such establishments are practical and feasible, and that otherwise they assist as far as they are able in supplementing educational information on nutrition and the preparation of nutritious lunches for the workers. It is urged that plant management leave to the plant physician the responsibility for deciding whether distribution of pharmaceutical preparations of vitamins and minerals is or is not to be adopted as a remedy for correcting inadequacies in workers' diets.

It is further resolved that the Office of the Council on Foods and Nutrition be prepared to provide physicians in industry with all pertinent information relating to the evaluation of distributing multivitamin preparations as a means of correcting inadequacies in workers' diets.

In support of the foregoing resolution the Council on Industrial Health appends the following recommendation:

The Council recognizes the important effects of nutritional deficiencies (subclinical as well as clinical) on the health and productivity of the workers.

The Council is of the opinion that medical supervision to the extent of (1) guiding management in furnishing suitable in-plant feeding facilities and dietaries and (2) counseling with the workers in the prevention of nutritional deficiency states is a function of industrial health.

The Council is of the further opinion that the treatment of nutritional deficiency states is a function of general medical practice.

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SATURDAY, MAY 27, 1944

REHABILITATION AND REEMPLOYMENT

Perhaps as many as a million soldiers, sailors and marines will be discharged from our armed forces during 1944. Many of them will be casualties of battle; many more will, no doubt, have been found unequal to the rigorous physical and disciplinary demands of military life. Fortunately a good share of the men in both of these classifications can be reabsorbed into industrial or other employment without serious difficulty. In many cases the restoration of a seriously handicapped man or woman to civil life will call for the best type of cooperation between physician, vocational educator and rehabilitation case worker. Rehabilitation and reemployment are important immediate problems not to be relegated to nebulous planning. Moreover, the need for such service is certain to grow as the intensity of war increases.

The rehabilitation of veterans is a specific responsibility of the Army, Navy and Veterans Administration, so assigned by law. Briefly, intensive treatment in military hospitals determines whether disabilities are recoverable and hence suitable to eventual return to duty. Serious handicaps receive special attention in designated hospitals where social adjustment and training go hand in hand with medical care. These patients when sufficiently recovered are discharged from the Army or Navy. Then the Veterans Administration provides vocational training and employment, provided the disability is service connected, that the person is honorably discharged and that rehabilitation is needed to overcome the handicap.

The expanding vocational rehabilitation program of the Federal Security Agency makes it doubly certain that private physicians will be keenly conscious of reconstruction and placement of the handicapped in employment. Under this program federal aid is provided to enable state boards of vocational education and state agencies for the blind to furnish disabled persons with all services necessary to render them employable or more advantageously employable. These services include medical and surgical care, hospitalization, physical and occupational therapy, prosthetic appliances, vocational counseling and training, maintenance during training, occupational tools and equipment, and placement in employment. Except for certain groups of war-disabled civilians and federal employees injured in line of duty, persons receiving physical restoration services or maintenance grants must be in financial need.

The federal Office of Vocational Rehabilitation is responsible for establishing standards in the various areas of service, for technical assistance to the states and for certification of funds on the approval of state plans for vocational rehabilitation meeting the requirements of the authorizing act of Congress. A national professional advisory committee, composed of representatives of fields of medicine actively concerned with rehabilitation, of hospital administration, public health nursing, medical social work, physical therapy and occupational therapy, has been appointed by the Federal Security Administrator to assist the Office of Vocational Rehabilitation in the technical phases of physical restoration services. Similar advisory committees will be appointed by all state rehabilitation agencies to guide them in establishing and maintaining professional standards for physical restoration. Further information can be obtained from the state boards of vocational education, from state agencies for the blind or from the Office of Vocational Rehabilitation, Federal Security Agency, Washington 25, D. C.

There is growing realization in industry that handicapped persons are more often assets to a plant than otherwise. There is mounting evidence that they are absent less, that they have fewer accidents and that both the quality and the quantity of production compare favorably with those of normal co-workers. It is not what the man has lost but what he has left that establishes his value in a specific job. Industrial physicians long have realized that after medical treatment has minimized a disability the most important factor in successful rehabilitation is selective placement, matching physical ability with specific job requirements.

Rehabilitation should be regarded as susceptible of local treatment, not relegated entirely to federal-state agencies. The Marathon County Medical Society in Wisconsin has recognized that preplacement examinations are essential before a handicapped person is employed. This county society has agreed to examine returning veterans without charge and to recommend to employers that placement occur wherever the veteran can work effectively and safely—safely to himself, to his co-workers and to the public. Placement certificates will be furnished each veteran and prospective employers urged to utilize the services of these men to maximum capacity. In Peoria, Ill., a community plan has been developed which searches out the handicapped, takes a census of job opportunities and brings the candidate and job opportunity together. A high degree of coordination has been developed between local govern-

ment, professional groups, industry, labor, health agencies, service clubs, veterans' organizations and other interested civic groups.

The Council on Industrial Health and the Council on Physical Therapy have set up a joint committee on rehabilitation. This committee believes that rehabilitation is essentially a medical problem, that the American Medical Association should notify the profession of legislative proposals in this field and see to it that physicians are in a position to participate effectively in current plans. There will likely be considerable dependence on the profession, both in general and in special practice, to carry out the medical aspects of the federal-state program now in formulation. Practitioners should therefore be in possession of as many details as possible, regarding both state administrative organization and the special facilities necessary for adequate diagnosis and successful case management.

CANCER AS THE RESULT OF ACCIDENTAL INJURY

Under workmen's compensation acts cases involving cancer fall in two groups, one in which the injury is claimed to have caused the cancer and one in which it is claimed that the injury aggravated cancer existing before the injury.[1]

In respect to the first group, the law appears to be that where "a normal healthy individual receives an injury by accident in the course of and arising out of his employment and thereafter his health steadily declines and a cancerous condition in the vicinity thereafter causes the (disability or) death of the employee, the causal connection between the injury and the cancer is established and the (disability or) death is compensable under the workmen's compensation act, on the theory that the cancer was caused by such injury." [2] To prove that the cancer is an "accidental injury" the following four elements must be present: serious injury or strain, physical connection between the injury or death, proper lapse of time between the injury and the disability or death, and freedom on the part of the employee from cancer at the time of the injury. Rubenstein cites a number of illustrative cases. An employee cut his lip on the edge of an envelope flap, "and cancer developed" for which compensation was granted. In another case the medical testimony is said to have revealed that lymphatic sarcoma developed as the result of a severe strain of the back.

The theory that cancer can be caused by a single accidental injury is not supported by prevailing scientific knowledge of the causation of cancer. Its only support would seem to be the fallacy of "post hoc ergo propter hoc." Unfortunately, legal authorities are willing to accept such crude reasoning as if it solved the cancer problem. In spite of the humanitarian intent of the declaration that a single accidental injury can cause cancer, justice has not been done and the public is receiving a wrong impression in regard to the cause of cancer. Undoubtedly awards such as the ones mentioned were based on medical testimony, but such testimony simply cannot be regarded as conclusive. Decisions that single accidental injuries have caused cancer or can cause cancer should be appealed to tribunals which will give the problems involved adequate competent attention in the light of present knowledge.

1. Rubenstein, I. H.: Cancer as Accidental Injury under the Workmen's Compensation Act, Bull. Am. Soc. for the Control of Cancer **26**: 18 (Feb.) 1944.
2. Smith, v. W. P. Lumber Co., 53 Idaho 808, 27 Pac. (2) 965 (1933), cited by Rubenstein.[1]

ORGANIC CHANGES IN MANIC-DEPRESSIVE PSYCHOSIS

A remarkable though crude observation which may prove to be a fundamental step in understanding the basic disorders in psychic diseases has recently been reported by Baird.[1] He theorized that manic-depressive psychoses may be related to functional disturbances of the adrenal gland which would be reflected by characteristic biochemical changes in the blood. He then administered to adrenalectomized cats whole citrated blood from manic patients obtained during an acute crisis. The results of this experiment were compared with those observed in adrenalectomized cats which received whole citrated blood from normal persons or isotonic solution of three chlorides. The average length of life after adrenalectomy of animals receiving manic blood was 11.5 days in one group of 4 cats and 10.3 days in a second group of 7 cats, as compared with an average survival of 2.3 days in 3 cats which received normal blood, 4.5 days in 2 cats treated with isotonic solution of three chlorides and 6 days in 2 cats which received whole blood from normal persons obtained during a state of emotional excitation. The average duration of life of all 11 experimental cats was nearly three times as long as that of all 7 control cats. The experiments were repeated using rats as experimental animals. Two adrenalectomized rats which received manic blood survived eight times longer than 3 adrenalectomized rats that received normal blood.

Some of the effects observed in animals treated with whole blood from acute manic patients were as amazing as unexpected. In contrast to the adrenalectomized controls, which were characteristically weak, inactive and semiagonal a few days after the removal of the adrenals, 2 of the treated cats showed exceptional strength and activity, being capable of running without fatigue and offering powerful resistance during the injections. Moreover, 1 of these cats was highly excitable, easily enraged, wild and ferocious, requiring to be held for the injections by the combined effort of three men. Likewise adrenalectomized rats that

1. Baird, Perry C., Jr.: Biochemical Component of the Manic-Depressive Psychosis, J. Nerv. & Ment. Dis. **99**: 359 (April) 1944.

received manic blood exhibited unusual strength and activity, voracious appetite and remarkable excitability and resistance during the injections.

These preliminary observations are difficult to interpret. Confirmation of the work is needed. Much more must be done before even the general idea which directed the experiments can be accepted. It would be desirable to extend the observations to a more significant number of animals, to repeat the experiments using adrenodemedullated animals and to study the electrolyte and carbohydrate metabolism in the adrenalectomized animals treated with blood from manic patients. The only conclusion that might be drawn from these preliminary studies is that there is a chemical difference, probably dependent on the adrenal function, between the blood of a healthy person and that of a manic patient. The author's main interest in publishing a report of his work at this stage is to stimulate similar investigation in this condition, especially since the material which can be used is so scarce and difficult to secure. Further, this study should lead to investigation with modern methods of the primary and secondary endocrine changes in manic-depressive and related psychoses.

Current Comment

CENTENNIAL CELEBRATION OF AN EARLY MEDICAL SOCIETY

Recently the Lancaster (Pa.) City and County Medical Society celebrated the one hundredth anniversary of its founding with a combined medical and public meeting at which were present many representatives of the Pennsylvania state and other medical organizations. As early as 1823 some of the physicians in that county conceived the idea of developing a medical society, which was not, however, finally formed until 1844. The society has had a notable career. One of its members, Dr. John L. Atlee, was President of the American Medical Association in 1882. The Lancaster County Medical Society was one of the first to encourage the entrance of women into the practice of medicine. Among the notable physicians who came from Lancaster County were members of the Musser family, John B. Deaver, the Muhlenbergs and the Appels. Dr. Jonathan M. Foltz, born in Lancaster in 1810, was personal physician to President Buchanan and became Surgeon General under President Grant. What is said to have been the first bath tub installed in the United States was installed in the home of Jacob Demuth in Lancaster in 1839. The second bath tub is said to have been widely announced as the one installed in Cincinnati in 1842. At that time several medical societies adopted resolutions warning of the danger of too frequent use of the bath tub because of the possibility of pneumonia and other congestive diseases. It is reported that at that time Philadelphia prohibited the taking of a bath more than once a week without a physician's prescription. Boston imposed a fine for the same offense. There was much talk of the scandal of sitting naked in a bath tub, and a maiden lady of Lancaster who had three pets—a parrot, a cat and a dog—was accustomed to blindfolding these pets when she took a bath. The hundredth anniversary of the Lancaster City and County Medical Society was greeted with a letter from the President of the United States, who noted the great contributions of the medical profession of Pennsylvania to the life of the nation and who emphasized the great accomplishments of the medical departments of our armed forces in this war. In honor of the centennial celebration a special issue of the Bulletin was made available. It includes facsimiles of the early notices associated with the formation of the society and two excellent historical recapitulations of the history of medicine in Lancaster.

BIRTH RATES IN WARRING COUNTRIES

Germany and the Axis nations of Europe are failing to maintain a growing population, while the United States, Great Britain and other Allied countries are recording large wartime gains in natural increase, according to a recent release from the Metropolitan Life Insurance Company.[1] The annual rate of population increase dropped in Germany from 8.1 per thousand of population in 1939, which was the highest rate obtained under Hitler's régime, to 2.9 in 1942, which is the lowest rate of natural increase in Germany since the first world war. In the United States, on the contrary, the rate of natural increase in 1939 was exceeded in Germany by 21 per cent, whereas in 1942 the reverse was true and the rate of increase in this country was almost four times that in Germany. Confirmation of the main features of this picture are given in the London Letter appearing elsewhere in this issue (p. 299). The latter report, however, stresses the even worse population picture of the conquered countries of Europe; most of these are probably failing to show a natural growth by an even larger margin than is Germany itself. Indeed, in many of them peace will likely find a materially smaller population than existed before the war. Thus war shakes the biologic foundations of human life and has an even more profound influence on the future than can be measured by the number of casualties.

INDUSTRIAL ACCIDENTS TO PRISONERS OF WAR

Under international law, prisoners of war are permitted employment in industrial plants. In practice, large numbers of prisoners undertake such employment not only because an amelioration of their living conditions and increased income usually results but also because the continued absence of occupation tends to become a form of punishment. Industrial injuries consequently involve prisoners of war like others in similar occupations. This problem has been considered in article 27 of the Geneva Convention of 1929 relative to the treatment of prisoners of war. Unfortunately the text of this agreement on reciprocity is not clear and permits two different interpretations. According to the more liberal view the obligation of the country to prisoners

1. Metropolitan Life Insurance Company, April 28, 1944.

of war who become victims of industrial accidents does not cease with the liberation and repatriation of the prisoner but continues indefinitely on a reciprocal basis. According to the second interpretation the obligation to the injured prisoner lasts only during the entire period of captivity. It ceases at the time of liberation. Those countries which have adopted the latter position have doubtless felt that it was more practical under the terms of reciprocity for each state to resume under its own regulations the indemnities for industrial accidents as they do with respect to prisoners suffering from war wounds. The first view is that held by the committee of the International Red Cross.[1] In the presence of these two opinions, however, and the obscurity in the text of the convention, it is felt that the question should be regulated in a definite and uniform manner by agreement between the interested countries.

SYMPTOMATOLOGY OF PSYCHONEUROSIS

The protean and atypical manifestations often elicited by psychoneurotic states may mislead the clinician. The complexity of the somatic manifestations in psychoneurosis has been recently emphasized by Douglas-Wilson,[1] who studied 231 patients in a military hospital. Nearly all exhibited localized symptoms referred to various organic systems. Cardiovascular disorders such as dyspnea, palpitation and precordial oppression were frequently the most distressing complaints. In other instances the primary symptomatology was referred to the chest, the central nervous system or the digestive and urinary tracts or was constituted by general manifestations, including weakness, nervousness, headache and dizziness. The typical case, however, presented multiple somatic complaints and a history more or less characteristic of mental disorder. The classification of psychoneurotic states into organic categories, a common example of which is the effort syndrome, should be avoided. Inaccurately it points to a single aspect of the condition and tends to obscure the primary psychic abnormality as well as the numerous associated somatic disturbances. A careful analysis of the histories of these patients disclosed in most a predisposition to mental disorders in addition to a number of factors responsible for the localization of symptoms. Previous injuries and mild illnesses or familial history of disease in the involved systems were frequently recognized as important factors in the localization of the somatic manifestations. Psychoneurotic patients preoccupied with the aftereffects of trauma to the head, with fear of tuberculosis, gastric lesions or heart disease, are apt to present subjective manifestations referred to the respective systems. The type of personality and the degree of mental development were equally important in the determination of symptoms. Thus, immature or mentally deficient persons often had urinary frequency and nocturnal enuresis on a psychoneurotic basis. A complete analysis of the history and an evaluation of the mental efficiency provide important clues to the diagnosis.

1. Editorial, Rev. internat. de la Croix-Rouge, November 1943, p. 849.
1. Douglas-Wilson, Ian: Somatic Manifestations of Psychoneurosis, Brit. M. J. **1**: 413 (March 25) 1944.

BIOLOGIC FACTORS OF SAFETY IN FERTILITY

In the attack on sterility, consideration is given not only to the ovum but also to the part played by the spermatozoa. Brown[1] of Washington University School of Medicine, has made some investigations of male seminal fluid with a view to determining whether or not modification in the character of this fluid or increase in its amount might serve to protect the spermatozoa over a longer period of time and make more likely contact of the sperm cell with the ovum. A variety of experiments were performed, mixing two or more fresh ejaculates and also mixing a fresh ejaculate with old ejaculates. In the course of the studies it was found that "one of nature's most extravagant enterprises is the production of spermatozoa." Man normally produces about 120 million spermatozoa for each cubic centimeter of fluid, or approximately 450 million in the average ejaculate. In one experiment a donor produced a total of 30 to 50 million spermatozoa every twenty-four hours daily over a considerable period. By calculation the male human delivers 1 to 2 billion spermatozoa for each ovum discharged into the female tubes. When it is realized that only 1 spermatozoon can impregnate the ovum, the tremendous factor of safety involved becomes apparent. These studies lead to the conclusion that such influence as the glandular secretions of the male have on the spermatozoa cannot be further increased by the addition of fluid to the normal ejaculate.

CADMIUM POISONING

Cadmium and its salts are used in many industries. Inhalation of the fumes of the metal or of its salts may result in serious, even fatal, poisoning, with widespread inflammatory changes in the lungs, gastrointestinal tract and kidneys. The lungs suffer most in inhalation of cadmium fumes. In mild cases recovery is prompt, but if pneumonia develops recovery may be delayed. Death has occurred within ten days. Finely divided cadmium is inflammable, and in the presence of oxygen dangerous fumes of cadmium oxide may develop. Ross[1] describes an instance of poisoning from the ignition of cadmium dust on the floor of a room while a cadmium recovery chamber was being cleaned. The ignition was caused when a worker smoking contrary to rules dropped cigaret ashes on the floor. Yellowish brown fumes filled the shop rapidly and poisoned all of the 23 workmen present. Nausea, epigastric pain, precordial constriction, dyspnea and prostration resulted to a greater or less degree in most of the men. Fourteen suffered from "fume fever." Of the more seriously affected, one was absent from work four weeks and another seven. The fireman who developed pneumonia was disabled for two months. Ross points out that where cadmium fumes may arise the worker "must be protected adequately by either an efficient exhaust system or a suitable respirator" and that in case of fire where cadmium is used the firemen will need respirators.

1. Brown, R. L.: Effect of Seminal Constituents on Spermatozoa, J. Urol. **51**: 443 (April) 1944.
1. Ross, P.: Cadmium Poisoning, Brit. M. J. **1**: 252 (Feb. 19) 1944.

MEDICINE AND THE WAR

ARMY

THE RECONDITIONING PROGRAM

The Army's Answer to the Manpower Shortage

Captain Franklin P. Boeckman, M. A. C.
Office of the Surgeon General, U. S. Army,
Reconditioning Division
WASHINGTON, D. C.

In peacetime medical practice, after-care and restoration of the patient to full health were of seemingly secondary importance as compared to the more urgent and fascinating treatment of acute illness. But today, with every lost man-hour directly contributable to a prolongation of the war, it is no longer considered sufficient to send a soldier recovering from a serious illness or operation home on a convalescent furlough with the hope that he will enjoy a comfortable bed to sleep in, plenty of nourishing food and an abundance of fresh air and sunshine. For such trust is seldom vindicated. The inducements to rapid convalescence offered by a convalescent furlough are more apparent than real. Too often soldiers returning from convalescent furlough are found to be in worse condition than when they departed. The "pleasant trip home" turns out to be a grueling ordeal in which the weakened patient is forced to stand for long hours in overcrowded trains or busses, where the air is pregnant with tobacco smoke and disease germs. Night brings little rest, and meals consist of nothing more than a sandwich, for even when sleeping accommodations and eating facilities are readily available the soldier is understandably reluctant to spend his limited earnings for that which he believes he can "get along without." Once he arrives at home, the convalescent soldier is usually caught up in a whirl of strength depleting social activities provided by his well intentioned friends and relatives who are anxious to "show the boy a good time."

It can be readily discerned that the convalescent furlough is wholly inadequate as a means of promoting convalescence. Therefore other measures for accelerating patient recovery, and thereby conserving fighting strength, had to be adopted. For all our strength is needed to win this war—strength greater than the enemy's. Not the potential strength of men lying in hospital beds, but the actual strength of men ready to battle with tank or bayonet, uninhibited by weakness or disease.

The mission of the Medical Department, "to conserve fighting strength," cannot be completely accomplished merely by prescribing treatment which will promote healing. It is equally essential that there be provided for the soldier who has recovered from a serious illness or surgical procedure convalescent care in the form of a program of reconditioning activities specially designed to suit his particular needs, and that his participation therein be guided in such a manner as to insure his regaining, in a minimum of time, the strength, endurance, agility and coordination which are prerequisites to the proper performance of military duty. Such a program is now in operation in all ASF hospitals. It is known as the Reconditioning Program.

In addition to the primary function of providing the means by which convalescent soldiers may be rapidly and effectively conditioned for return to full military duty, the Reconditioning Program offers itself as a laboratory where the allegation or suspicion that a man is disqualified for further military service may be either verified or disproved, where the capabilities and limitations of men unfit for full duty and yet ineligible for medical discharge may be studied with a view to recommending appropriate reassignment, and where preoperative patients found to be in a state of nutritive imbalance may be built up, thereby improving operative results and shortening the postoperative convalescence period.

The Reconditioning Program was authorized by Memorandum No. W40-6-43, WD, 11 February 1943, subject "Convalescence and Reconditioning in Hospitals." General policies for its operation were established by SGO Circular Letter No. 168, 21 September 1943. But the additional personnel required for the operation thereof were not provided by either directive. Consequently hospital staffs, forced to carry on the task in addition to their already overburdening duties, were unable to do full justice to the program. This situation existed until March 11, 1944, when section II of ASF Circular No. 73 provided specific allotments of personnel sufficient for the proper operation of the Reconditioning Program.

The hereinbefore mentioned circular provided in brief that the reconditioning sections of all ASF hospitals of 500 normal beds or larger would be authorized additional personnel as follows:

1. One major or captain, M. A. C. or M. C., as chief of the reconditioning section.
2. One major or captain, morale services trained, as educational officer, with two enlisted or civilian assistants for each thousand normal beds or major fraction thereof.
3. One technical sergeant, staff sergeant or sergeant qualified as a physical education instructor, for each 500 normal beds or major fraction thereof.
4. One captain or first lieutenant, M. A. C., as commanding officer of the advanced reconditioning section and for each hundred class 1 and 2 trainees in the advanced reconditioning section; one first or second lieutenant, M. A. C.; one technical sergeant qualified in physical education, and two sergeants qualified as platoon leaders.

In addition to these personnel, section IV, ASF Circular No. 30, 1944, authorizes that, "to the maximum extent practicable, officers of company grade who have been wounded in action, are classified limited service, are superior in leadership and are physically and mentally suited to such duties will be assigned to duty with reconditioning sections of general hospitals."

Civilian occupational therapists are now being assigned to general hospitals, and it is intended that the larger station hospitals will be similarly supplied when sufficient trained therapists are available.

Only personnel who are highly enthusiastic about the value of the Reconditioning Program should be assigned to it for duty. These personnel must be capable of arousing or implanting in others an intense devotion to duty and an appreciation of the benefits to be derived from wholehearted participation in the Reconditioning Program. When men are motivated to extend them-

selves mentally and physically in an effort to perform all activities in the prescribed manner, best results in reconditioning are obtained. But only strong and enthusiastic leadership will motivate men to this extent.

THE BED PATIENT

The bed patient is assigned to the Reconditioning Program just as soon as it is determined by the ward officer that he has improved sufficiently to permit his engaging in light exercises for short periods each day. He is referred to as a "class 4 patient."

The physical regimen for the class 4 patient usually consists in from fifteen to sixty minutes daily of mild calisthenics, deep breathing exercises, self-resistive exercises, rolling, stretching, light arm and foot movements consistent with the limitation imposed by the disease or injury and, when indicated, heat, massage and the various other treatments used by physical therapists to promote recuperation. Exercise sessions are divided into periods of fifteen minutes each and are spaced throughout the day.

As the state of the patient when he enters the convalescent period depends on several variables, such as the previous condition of the patient, the duration of the illness, the degree of fever and the physiologic and biochemical disturbances of the body incident to the disease, it is apparent that the program of reconditioning must be prescribed for the patient rather than for the disease.

Prescribed by medical officers and executed under the supervision of physical training instructors specially trained to direct them, exercises are conducted in such a manner as to approach the tolerance of the individual as closely as possible but never to exceed it.

The occupational therapy prescribed for the bed patient usually is limited to light purposeful tasks or creative art or handicraft activity which can be accomplished conveniently while in bed and may include such practical activity as folding dressings, making medicine swabs and fabricating camouflage nets and helmet nets. The therapeutic aspect of properly guided leisure time occupation is important to the treatment program of the patient as well as to his morale and that of the duty personnel.

The educational content of the program for class 4 patients includes news analyses, radio programs, reading of books and periodicals, lectures and discussions on topics of general interest, and short periods of instruction on military subjects. It is designed to divert the mind by relieving it of the anxieties and strains of war and the boredom and weariness resulting from enforced physical inactivity and, while diverting the mind, to stimulate active and purposeful interests. Such interests are directed toward inculcating in the patient a desire to return to duty in good condition as rapidly as possible.

THE AMBULATORY PATIENT

When the patient becomes ambulatory he is known as a "class 3 patient." He is now able to engage in more arduous activities. He is called on to make his own bed, police his bed area and assist Medical Department personnel in performing various jobs, both in his own ward and in other parts of the hospital.

To the occupational therapy section the ambulatory patient is referred for the purpose of participation in occupational activities which have therapeutic or industrial value. The physical injury cases are assigned to such occupations as woodworking or printing, thereby strengthening weakened or injured muscles or increasing joint motion. Patients requiring psychologic (psychiatric) treatment are activated through the use of constructive occupations that will develop a sustained interest and motivate the energies. The use of occupational therapy in prolonged convalescence diminishes self pity and discouragement and is the first step in the program of retraining and promoting general fitness. The activities used are many and varied but must hold manly interest. The learning of new skills and technics, such as the use of tools, how to print, bookbinding, plastic work, radio repairing, the making of camouflage nets, identification tag cords and lanyards, and fly tying, hold an interest for the men which may well carry over into the more industrial pursuits. Individual patients may be assigned to industrial therapy according to disability and specific abilities and interests. Designated hospital departments may be utilized, the particular occupations being selected and work activities arranged by the occupational therapist in concurrence with the medical officer. Such departments might include the offices, the carpenter shop, plumbing and electrical shops, orthopedic shop, the cafeterias, the photographic department and the building and grounds department for outdoor activity and gardening, the library, the laboratory and the storeroom. The facilities of these departments would necessarily be made available to patients on an assignment basis, the work to be supervised by department personnel.

Class 3 patients are required to participate in from two to three hours of physical training daily. These exercises are carried out either in the ward, in a gymnasium or, weather permitting, outdoors in the area immediately adjacent to the ward. In some hospitals, in an effort to "take the gymnasium to the ward," carts have been constructed which are equipped with Indian clubs, dumbbells, arm and leg exercisers, medicine balls and hand grips. The application of the overload principle requires that the exercises prescribed for the class 3 patient be increased daily in intensity and scope. In addition to calisthenics and gymnastics, these patients are able to engage in mild games such as croquet, throwing horseshoes and modified softball.

The educational program for the ambulatory patient calls for more time to be devoted to military subjects and less to the so-called diversional subjects. He is able to attend training bulletins, film bulletins, lectures, conferences and demonstrations devoted to military subjects which require no field work. Morale Services officers present highly enlightening and interesting orientation courses. In addition, patients are encouraged to study United States armed forces institute courses during their off duty hours with a view to continuing such courses on discharge from hospital. Practical teachability is the chief concern.

THE ADVANCED RECONDITIONING SECTION

Patients who no longer require hospitalization are either (1) returned to duty, (2) discharged from the service or (3) admitted to the advanced reconditioning section for further physical training. Patients whose stay in the hospital has been so brief as not to permit of any appreciable loss in condition are returned directly to duty, while all others who may be expected to return to duty are assigned to the advanced reconditioning section.

Patients assigned to the advanced reconditioning section are known as "trainees." They are divided into two groups, namely (1) the class 2 group, who are in early stages of training, and (2) the class 1 group, trainees who have almost completely recuperated.

As Florence Nightingale is reported to have said, "The important thing about a convalescent hospital is that it not be like a hospital at all." In the advanced reconditioning section every effort is made to create a "line company" atmosphere. To this end the trainees are housed in barracks detached from the hospital, wear regular duty uniforms, sleep on cots instead of hospital beds, are issued class A passes and are, in general, granted all privileges normally enjoyed by soldiers on a full duty status. The trainees are assigned to platoons commanded by a sergeant who is a member of the advanced reconditioning section staff. Squad leaders are selected from among the trainees. This section is operated under full military discipine.

To achieve desired results, all activities in the advanced reconditioning section must be scheduled as in the average training company. Beginning with reveille and ending with retreat, every man is fully occupied during the entire day. The greater part of the training day is devoted to physical reconditioning activities with but two hours a day being allotted to academic military instruction. In advanced reconditioning sections of general hospitals these academic subjects actually constitute a refresher course in basic military training, with emphasis on such subjects as map reading, scouting and patrolling, weapons and their uses, sanitation and hygiene, defense against air, mechanized and chemical attacks and first aid. At station hospitals, however, the program content is selected so as best to suit the needs of the major units stationed at the post. All military training is carried on outside of the hospital proper.

The orientation courses which were started when the trainee was a bed patient are continued in the advanced reconditioning section. These are conducted by officers who are Morale Services trained.

Those trainees who, as bed or ambulatory patients, subscribed to U. S. AFI courses are encouraged to continue their study, while efforts are made to sign up those who were not previously interested.

For those trainees who have been recently admitted to the advanced reconditioning section (class 2) the physical activities are comparatively mild, but as they progress the regimen increases in both character and duration until during their last week in the program as class 1 trainees they participate in six hours daily of grueling exercises, some of which are general in nature while others are designed to strengthen a particular weakness.

The physical training program provided for trainees in the advanced reconditioning section includes calisthenics, games, gymnastics, swimming and water resistive exercises (where facilities are available), marches up to 15 miles, combative exercises, drill and physical fitness tests.

Many incidental medical matters are cared for during the trainee's stay in the advanced reconditioning section. Each man has his eyes examined, and spectacles are prescribed when required. A dental survey discloses any dental defects, and all indicated treatment is administered before the trainee returns to duty. Every effort is made to send the soldier back to his organization fit in every respect to perform full military duty.

Recreation and diversional activities such as movies, USO shows and dances are provided. Athletics, games and various other forms of group and individual recreation are enjoyed by all trainees as a result of the efforts of the American Red Cross.

At some posts, commanders of the major tactical units stationed there have, in an effort to conserve and more properly utilize manpower, attached classification officers to the hospital for the purpose of reclassifying and/or reassigning patients unfit for the duties to which they were formerly assigned by reason of either (1) maladjustment or (2) a physical disability which, although not sufficiently serious to warrant discharge from the service, prevents the performance of full military duty.

These classification officers are able, with the assistance of the reconditioning officer and the commanding officer of the advanced reconditioning section, to study such trainees under working conditions with a view to recommending reassignment to duties compatible with their limitations.

CONCLUSION

No one knows what the imponderable future holds in store for the Reconditioning Program. But if its auspicious inception can be construed as a manifestation of its ultimate destiny, then the Medical Department of the United States Army has been afforded, through the medium of the Reconditioning Program, an immediate opportunity to achieve even greater success in its relentless efforts to conserve and utilize more efficiently the manpower of the Army.

EIGHTEENTH CLASS TO GRADUATE IN TROPICAL AND MILITARY MEDICINE

Graduation exercises for the eighteenth class in tropical and military medicine were held recently in the Sternberg auditorium of the Army Medical School. Col. George R. Callender, director of the Army Medical School, presided. The diplomas were presented by Col. Richard P. Strong, director of tropical medicine at the Army Medical School, and the class was addressed by Lieut. Col. Hardy A. Kemp, recently returned from extended service in tropical areas.

The graduating class consisted of sixty-five officers of the Medical Department of the U. S. Army, three of the Medical Branch of the Royal Canadian Air Force, one of the United States Public Health Service, two from the Veterans Administration and seven faculty members of medical colleges of the United States and Canada. With the graduation of this class, a total of 1,542 persons have completed the course.

EIGHT BRAZILIAN PHYSICIANS COMPLETE COURSE AT CARLISLE BARRACKS

Eight officers of the Brazilian army medical department were among those who graduated recently from the Medical Field Service School, Carlisle Barracks, Pennsylvania, after six weeks of training for duty with troops. Through an interpreter, Lieut. Richard O. Weber, U. S. Army, of Dayton, Ohio, the eight foreign officers were able to follow all of the class sessions and learn a great deal about the operation of the U. S. Medical Department. The graduates included Major Nelson S. de Meirelles, Capt. Ary Nunes, Capt. Virgilio A. Bastos, Capt. Nelson Rocha, Capt. Adolpho R. Ratisbona, Lieut. Mario E. Alvaro, Lieut. Raphael T. M. Barros and Lieut. Luis deA. Guimaraes. All the officers are in the medical corps with the exception of Major de Meirelles, who is in the dental corps.

ARMY TO RETURN BREAKERS HOTEL TO OWNERS

The U. S. Army will return the Breakers Hotel, Palm Beach, Fla., to its owners on December 11. The hotel has been operated under temporary lease as an army hospital since March 1943. Evacuation of patients will be completed by September 1, the War Department believes, and it is planned to distribute these patients to army hospitals in the vicinity of their homes.

NAVY

NAVY INAUGURATES COAST TO COAST AIRPLANE AMBULANCE SERVICE FOR WOUNDED AND SICK

The Navy inaugurated a new service recently designed to speed the recovery of its wounded and sick, at which time a group of patients were transported from coast to coast by airplane ambulance. The 14 sailors and Marines, all suffering from rheumatic fever, were placed aboard a naval air transport service plane at Washington National Airport en route to the U. S. Naval Hospital at Corona, Calif., where there is specialization of treatment for this disease. Overseas, airplane evacuation of the disabled from forward to rear areas has been conducted on a systematic basis since the first Solomons operations in 1942. In the United States, air ambulance transport for shorter distances has been practiced for many months. All of the 14 patients who figured in the pioneer flight were patients at the U. S. Naval Hospital, Bethesda, Md. Comdr. Alvin F. Coburn, Medical Corps, U. S. Naval Reserve, was in charge of the patients during the flight.

SEEK COMPLETE SET OF COMMISSIONS ISSUED TO NAVAL MEDICAL OFFICERS

The National Naval Medical Center, Bethesda, Md., is endeavoring to collect for its archives a complete set of commissions issued to naval medical officers and signed by past Presidents of the United States. The center has already collected some of this material and it is hoped to be able to build this up to a complete file. The Surgeon General of the Navy would greatly appreciate it if state libraries or individuals who may have in their possession such old commissions turn them over to the center for this purpose.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Commander William F. Queen

A Letter of Commendation and Ribbon has been presented to Lieut. Comdr. William F. Queen, formerly of Louisa, Ky., "for outstanding performance of duty during fierce combat with enemy Japanese forces near Henderson Field, Guadalcanal, Solomon Islands, on the night of Sept. 13-14, 1942. Although his unit was not engaged at the time, Lieutenant Commander Queen, on being informed that wounded men were lying unattended in the vicinity of 'Raider's Ridge,' voluntarily entered the extremely dangerous area and, with utter disregard for his own safety under intense and persistent enemy machine gun and rifle fire, personally administered to the many wounded throughout the night and supervised their evacuation. His splendid initiative and unselfish devotion to duty, maintained in the face of grave peril, were in keeping with the highest traditions of the United States Naval Service." Dr. Queen graduated from Harvard Medical School in 1933 and entered the service Aug. 18, 1938.

Captain French R. Moore

Capt. French R. Moore, now on duty in the Bureau of Medicine and Surgery, has been awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding service to the government of the United States prior to and during action against enemy Japanese forces on Tarawa, Gilbert Islands, Nov. 20 to Nov. 28, 1943. He effectively coordinated the efforts of medical units with the infantry teams and by his superb professional skill and knowledge contributed to the combat efficiency of the division. The fine record of performance of medical units on Tarawa was in a large part due to his outstanding leadership and courage in the face of the enemy. On Nov. 20, 1943, under heavy enemy machine gun, rifle and cannon fire, he participated in the rescuing of a number of wounded from under the pier and from damaged and stranded landing boats. His valorous action in rescuing these wounded, rendering first aid treatment and subsequently transporting them to a troop ship, while under enemy fire, was responsible for the saving of their lives. His thorough and complete spirit of cooperation, coupled with his painstaking forethought in organization and indefatigable and tireless devotion to duty, were of invaluable assistance to the division commander and in keeping with the highest traditions of the United States Naval Service." Dr. Moore graduated from the University of Oregon School of Medicine, Portland, in 1926 and entered the service in that year.

Commander Gordon Murphy Bruce

Comdr. Gordon Murphy Bruce, formerly of Englewood, N. J., was recently awarded the Silver Star Medal for service as set forth in the following citation: "For conspicuous gallantry and intrepidity as Commanding Officer of the Medical Battalion during the landing activities at Empress Augusta Bay, Bougainville Island, on Nov. 1, 1943. Having established his command post and set his organization in operation, Commander (then Lieutenant Commander) Bruce, on being informed that the First Battalion at Cape Torokina was suffering heavy casualties and that its medical facilities were overtaxed, unhesitatingly made his hazardous way along 5,000 yards of beach exposed to intense enemy machine gun and rifle fire. . . . Entering the battalion aid station as it was being persistently machine gunned from Torokina Island, Commander Bruce assumed his vital duties and rendered invaluable services to the medical personnel who were caring for the wounded. His inspiring leadership and valiant devotion to duty under extremely difficult conditions were in keeping with the highest traditions of the United States Naval Service." Dr. Bruce graduated from Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, in 1925 and entered the service in July 1942.

Lieutenant Commander Henry P. Hopkins

The Navy Department recently announced the award of the Bronze Star Medal to Lieut. Comdr. Henry P. Hopkins, formerly of Chatham, Mass., for service as set forth in the following citation: "For meritorious service while in action against the enemy as regimental surgeon attached to a Marine regiment operating in the Solomon Islands area from Sept. 21, 1942 to July 29, 1943. During this period Lieutenant Commander Hopkins participated in three major engagements in the Matanikau River area on Guadalcanal Island, and despite the hazardous and trying battle conditions he manifested zeal, efficiency, courage and outstanding ability in the execution of his duties. During the rehabilitation stage he was in charge of health sanitation of his regiment. Owing to his foresight and diligent devotion to duty, he coped with many and varied conditions existent in the tropics and reduced to a minimum the hazards of infection and disease. His conduct throughout was in keeping with the highest traditions of the United States Naval Service." Dr. Hopkins graduated from McGill University Faculty of Medicine, Montreal, in 1932 and entered the service Sept. 9, 1941.

NINE PHARMACIST'S MATES RECEIVE CITATIONS

The Navy Department recently announced the following awards, each accompanied by a citation:

Berry, Marvin Leon, Pharmacist's Mate Second Class, U. S. Navy, formerly of Grand Saline, Texas.—Silver Star Medal.

Bowen, Stanley W., Pharmacist's Mate Third Class, U. S. Naval Reserve, formerly of Beverly Hills, Calif.—Commendation.

Campbell, Frank Marve, Chief Pharmacist's Mate, U. S. Naval Reserve, Formerly of Long Beach, N. Y.—Commendation.

Casey, James M., Pharmacist's Mate First Class, U. S. Navy, formerly of New Caney, Texas.—Bronze Star Medal.

Gordon, Finley Arnold, Pharmacist's Mate Third Class, formerly of Philadelphia.—Navy Cross (posthumously).

Harbison, Charles W., Pharmacist's Mate First Class, U. S. Naval Reserve, formerly of Buffalo, Okla.—Commendation.

Lee, James Luther Jr., Pharmacist's Mate Third Class, U. S. Naval Reserve, formerly of Round Rock, Texas.—Navy Cross (posthumously).

Storms, Earl la Von, Pharmacist's Mate Second Class, U. S. Navy, formerly of Gardena, Calif.—Navy Cross.

Walthall, Jacques A., Pharmacist's Mate Second Class, U. S. Naval Reserve, formerly of Birmingham, Ala.—Silver Star Medal.

MISCELLANEOUS

EVALUATION OF STUDIES ON GELATIN PREPARATIONS FOR INTRAVENOUS USE

Special Report from the National Research Council

The subcommittee on blood substitutes of the Division of Medical Sciences of the National Research Council has agreed on the publication of a statement on its evaluation of studies on gelatin preparations for intravenous use. It does this to make available its conclusions regarding the proper use and the limitations of gelatin, and at the same time to make it clear that the preparation and use of gelatin in no way decrease the need for the procurement of blood by the American Red Cross and the preparation from it of blood substitutes for the armed forces. These statements are limited to gelatin solutions specifically prepared for intravenous use. Such solutions should be prepared only in specially constructed plants under the most rigid physicochemical and biologic control.

STATEMENT OF THE COMMITTEE

On the basis of the extensive earlier literature and the recently accumulated evidence, certain statements can be made concerning solutions prepared for intravenous use and the chemical, physiologic and clinical properties of such solutions compared with those of plasma.

I. *Chemical.*—1. Plasma is constituted of molecules whose size is known and related to plasma function. The plasma proteins may be grouped into a few classes, in each of which the molecules are of uniform size and shape. Gelatin and degraded gelatin solutions submitted for study as transfusion fluids show almost continuous variation in size over a very wide range.

2. Plasma proteins have diameters close to 36 angstrom units. Most of the particles of gelatin and degraded gelatin have diameters of about half this value, 18 angstrom units.

3. The largest part of the plasma proteins do not deviate greatly from the symmetrical shape, though fibrinogen, present to a small extent, has long rodlike molecules. Gelatin appears to be made up of linear polypeptide chains loosely coiled to give very long molecules.

4. Degradation of gelatin decreases the number of very long particles which are responsible for the gelatin, much of the viscosity, and probably other desirable effects. Degradation increases the number of very small particles which are responsible for most of the osmotic pressure, though not for the colloid osmotic pressure since they diffuse rapidly through membranes.

5. A standard technic of degradation of gelatin yields solutions of about the same average molecular weight and the same size distribution. The degree of degradation is best measured by the number of potential peptide linkages which are broken. This number can be determined from the osmotic pressure or more easily from the viscosity, since the intrinsic viscosity of these solutions is proportional to the number average molecular weight.

6. Plasma proteins do not readily diffuse through membranes employed in measuring colloid osmotic pressure. A large part of the degraded gelatin solutions submitted for study as transfusion fluids is of such small size as to diffuse readily through such membranes.

(Note: The solution with optimal value in the treatment of hemorrhage and shock examined up to the present time is one of 6 per cent concentration, prepared in saline solution and with the general physicochemical characteristics of what is known as the Knox P-20 type.)

II. *Physiologic and Clinical.*—1. It must be recognized that, when available, whole blood, plasma or human serum albumin are the solutions of choice to be employed in the treatment of hemorrhage or shock.

2. It has been demonstrated that, when the precautions recommended to the gelatin industry are taken, pyrogen-free solutions of gelatin can be prepared.

3. Such gelatin solutions have been given to man without late toxic reactions being observed.

4. A small percentage of individuals have been found to have immediate reactions. Local thromboses are common when certain preservatives are employed.

5. Injection of the gelatin solutions has been made without evidence of sensitization.

6. Many repeated injections in animals have been given without evidence, histologic or clinical, of toxicity or irreversible accumulation.

7. The solutions of gelatin studied have a definite effect in augmenting cardiac output and circulating blood volume in dogs submitted to hemorrhage and in patients suffering from shock due to hemorrhage or skeletal trauma. Evidence indicates that gelatin solutions may have a beneficial effect in burns. There is thus clinical evidence that these solutions have a definite, though temporary, effect in relieving the state of shock; therefore it is often necessary to take recourse to multiple injections.

8. The smaller molecules on which the osmotic effects of gelatin solutions depend are rapidly lost from the blood stream, largely through the kidneys. In this respect the effect of gelatin may be contrasted with that of the plasma proteins which are not normally lost through the kidneys but, when present in excess, form reserves in the tissues.

9. The longer rodlike particles of gelatin persist in the blood stream and are presumably responsible for rouleau formation, for the increased sedimentation rate of the red cells and for the changes in the distribution of plasma proteins between the blood stream and the tissues.

III. *Limitations and Unanswered Questions.*—1. The solutions gel at about 20 C. and therefore cannot be used in cool or temperate climates in the field.

2. Proper typing of blood following the administration of gelatin solutions may be difficult. This problem should be studied further. It may be essential to warn that a sample of blood for typing should be withdrawn from each patient before the administration of gelatin solution.

3. Based on present information, the optimal solution mentioned showed slow but definite and continued degradation at temperatures encountered in certain theaters of war.

4. The viscosity of the optimal solution is definitely greater than that of whole blood.

5. It is not known whether a solution of this type will impair the return of normal function to kidneys in sustained ischemia or in the case of severe burns or the crush syndrome.

6. Gelatin solutions probably do not contribute significantly to nutrition. Their only place in medical therapy would be to restore a loss of circulating blood volume in acute injury of various types.

7. The influence of gelatin on the equilibrium in the distribution of plasma proteins between circulating blood and tissues should be further investigated.

RECRUITMENT OF PHYSICIANS FOR ARMY, NAVY AND VETERANS ADMINISTRATION

Recruitment procedures under which the state chairmen for physicians have operated for some time will be changed as a result of the following developments in the needs of the Army, Navy and Veterans Administration:

1. *Relaxation of Age and Other Requirements of the U. S. Navy.*—The U. S. Navy Medical Corps has recently increased its age limit to 55 years. Physical requirements have also been relaxed, with the result that men who have expressed a preference for Army service and who do not meet Army standards for general service may be referred to the U. S. Navy for consideration for commissioning by the Navy.

2. *Requirements of the U. S. Army.*—The U. S. Army Medical Corps will continue to commission for general and limited service men up to the age of 45 who have been declared available by Procurement and Assignment Service. In exceptional cases the U. S. Army will continue to waive age requirements for men for specific position vacancies.

3. *Requirements of the Veterans Administration.*—Since December 1943 the need of the Veterans Administration for qualified physicians has greatly increased. Therefore the following plans have been set up:

(*a*) Physicians under 45 years of age made available to the Army and who are not physically qualified for duty with Army

installations but who meet Veterans Administration requirements will be given Army commissions for assignment to duty with the Veterans Administration.

(*b*) Physicians under 55 years of age made available to the Navy and who are not physically qualified for duty with Navy installations but who meet Veterans Administration requirements will be given Navy commissions for assignment to duty with the Veterans Administration.

(*c*) Physicians between the ages of 45 and 63 years who have been declared available for appointment by the Army will be offered commissions by the Army for assignment to duty with the Veterans Administration only, except that those between the ages of 45 and 55 years found physically qualified for general service will be submitted by the Army to the Navy for consideration for duty with the Navy.

(*d*) Since the Navy will not appoint any physician who has passed his sixtieth birthday for duty with Navy installations or the Veterans Administration, all available physicians between the ages of 60 and 63 should be made available to the Army only for duty with the Veterans Administration.

TREATMENT OF WAR PRISONERS IN GERMANY

The German authorities have recently advised the International Committee of the Red Cross at Geneva of the methods employed in Germany for readaptation and rehabilitation to normal life of wounded prisoners of war. By arrangement with senior camp doctors, surgeons prescribe treatments suitable for prisoners who are cared for in the lazarets (military hospitals) or in the camps. They also supervise their application.

The directions for treatment by means of work are similar to those used by the German army for its wounded soldiers. This treatment consists mainly of (1) sports, (2) medical gymnastics, (3) manual labor such as sewing, toymaking, embroidering and knitting, (4) carpentry, tailoring, shoemaking, cabinetmaking and wood engraving, (5) work for the blind: basket, mat, slipper, broom and brush making, (6) gardening, kitchen work (vegetable cleaning) and laundry work.

In choosing the work appropriate to the functional treatment of the disabled prisoners, the surgeons take into consideration not only the therapeutic purpose but also the prisoner's aptitude and his future professional reinstatement.

Prisoners of war are expected to make their own tools and sometimes even the apparatus necessary for their work. In one camp the prisoners feasible to institute therapeutic occupational service, the wounded and sick requiring such treatment are transferred to lazarets or other camps.

In cooperation with Red Cross societies and other organizations, the War Prisoners' Aid of the Y. M. C. A. has provided many of the hospitals with essential materials for this treatment. In addition to athletic goods, sets of tools for carpentry, wood carving, gardening and shoemaking have gone to camps. During the past month 50 artcraft sets especially designed for prisoners of war were shipped and 500 have been ordered. The German authorities cooperated extensively with the Y. M. C. A. and the Red Cross in locating in one camp the British blind, providing a special teacher and facilitating the educational and rehabilitation program. These men, however, were fortunately repatriated on the exchange of seriously wounded prisoners last fall.

WAR PRODUCTION BOARD ISSUES ORDER COVERING CINCHONA DERIVATIVES

Under date of May 9 the War Production Board issued an order covering cinchona bark and cinchona alkaloids, requiring that any person who wishes to get quinidine for consumption and not for resale must furnish the supplier with a physician's prescription. This applies to all deliveries of quinidine to the ultimate consumer. The prescription must be signed by a physician licensed to practice medicine and must state either that the quinidine prescribed is to be used for the treatment of cardiac disorders or "pursuant to War Production Board Order M-131, paragraph (e)." The amendment further requires that no quinidine shall be delivered pursuant to such prescription which is written for more than fifty 3 grain tablets or capsules, or for the equivalent of 150 grains of quinidine in other dosage forms. Furthermore, the prescription may not be used a second time to obtain additional quantities.

WARTIME GRADUATE MEDICAL MEETINGS

Additional subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

At U. S. Naval Hospital, Portsmouth, N. H.: Joint Injuries, Dr. Ezra A. Jones, June 15.

At Dispensary, U. S. Naval Construction Training Center, Davisville, R. I.: Blood Dyscrasias and Transfusions, Dr. William Dameshek, June 15.

At Station Hospital, Bradley Field, Windsor Locks, Conn.: Blood Dyscrasias and Transfusions, Drs. Ralph W. Kendall and Louis P. Hastings, June 15.

At Station Hospital, Fort Monmouth, N. J.: Basic Concepts in the Treatment of Burns, Dr. James Walker, June 7; Low Back Pain, Dr. Paul N. Jepson, June 14; Acute Glomerulonephritis, Dr. George Morris Piersol, June 21; Malignancy as Seen in Armed Forces, Dr. Stanley P. Reimann, June 28.

At Station Hospital, Indiantown Gap, Pa.: Peripheral Nerve Block, Lieut. Comdr. Don Hale, June 7; Acute Infectious Hepatitis, Dr. Henry J. Tumen, June 14; Complications Occurring in Diabetes, Dr. David W. Kramer, June 21; The Relationship of Pain and Tenderness to Body Mechanics, Dr. John C. Howell, June 28.

At Newton D. Baker General Hospital, Martinsburg, W. Va.: Psychosomatic Medicine, Dr. Lawrence F. Woolley, June 5.

At Station Hospital, Camp Lee, Va.: Aviation Medicine, General, Dr. Ludwig Lederer, June 2.

At Station Hospital, Fort Eustis, Va.: Accident Prevention in the Army Air Forces, Major Richard H. Follis, June 8.

At Station Hospital, Langley Field, Va.: Modern Diagnosis and Treatment of Pulmonary Tuberculosis, Dr. Dean B. Cole, June 6; Respiratory Diseases and Their Modern Treatment, Dr. Porter P. Vinson, June 13; Treatment of Cardiovascular Emergencies, Dr. William B. Porter, June 20.

At U. S. Naval Hospital and U. S. Naval Academy Dispensary, Annapolis, Md.: Maxillofacial Surgery (demonstrated with lantern slides), Dr. John Staige Davis, June 16.

At Station Hospital, Fort George G. Meade, Md.: Acute Rheumatic Fever, Dr. Elliott V. Newman, June 2.

COMMUNITIES IN NEED OF PHYSICIANS

In addition to the communities listed in THE JOURNAL, May 20, page 217, the following community has applied to the U. S. Public Health Service for federal assistance in obtaining the services of physicians under the recently enacted law authorizing an appropriation of $200,000 for the relocation of physicians:

Vale (Malheur County), Oregon.

Physicians interested in locating there or in previously announced communities should communicate with the Surgeon General, United States Public Health Service, Washington (Bethesda Station), D. C.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, May 20, page 217)

ARKANSAS

Baptist State Hospital, Little Rock. Capacity, 340; admissions, 8,717. Mr. John G. Dudley, Administrator (3 interns).

INDIANA

Logansport State Hospital, Logansport. Capacity, 2,395; admissions, 821. Dr. C. L. Williams, Superintendent (residents—psychiatry).

MASSACHUSETTS

Boston Floating Hospital; Joseph H. Pratt Diagnostic Hospital, Boston. Mr. Frank E. Wing, Director (4 resident fellowships—pediatrics, medicine, October 1).

NEW JERSEY

Morristown Memorial Hospital, Morristown. Capacity, 158; admissions, 3,214. Col. Charles Rees Lloyd, Director (2 interns).

Perth Amboy General Hospital, Perth Amboy. Capacity, 197; admissions, 4,729. George C. Schicks, Director (intern, resident).

ORGANIZATION SECTION

OFFICIAL NOTES

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Sixth Annual Meeting, Held in Chicago, Feb. 15-16, 1944

DR. STANLEY J. SEEGER, Texarkana, Texas, Presiding

FEBRUARY 15—MORNING

Report of the Council on Industrial Health

DR. STANLEY J. SEEGER, Texarkana, Texas: This report appears in full in this issue, page 239.

Industrial Health—A Restatement of Objectives

DR. JAMES E. PAULLIN, Atlanta, Ga.: The Council on Industrial Health early in its career came to the conclusion that the physician in industry should concern himself with prevention of disease or injury in industry by establishing proper medical supervision over industrial materials, processes, environments and workers, with health conservation of workers through physical supervision and education and with medical care to restore health and earning capacity as promptly as possible following industrial accident or disease. An industrial medical department which fails to provide all of these activities is by definition substandard. Services extending beyond these objectives should be regarded as falling in the scope of the private physician and organized community health facilities. Where such community health and medical facilities are absent or inadequate, industry must make its own provision. These minimum standards, if widely applied, would contribute enormously to the health of millions of workers and to the productive capacity of industry.

What do we need to do to turn this latent interest into effective action? Industrial health service will thrive if it provides a satisfying professional experience, attractive to high minded, well trained physicians. Several elements seem to be particularly important: that there be no subordination of the physician's obligation to the best interests of individual patients, that the plant medical director have real executive authority in the industrial organization and that he have opportunities for professional contacts and advancement. If a substantial demand is to be created, we must provide trained personnel to meet it. This is the obligation and opportunity of medical education and medical organization. No physician in a predominantly industrial society should be allowed to graduate without sound basic training in modern industrial health methods. Proper local medical organization should see to it that this level of training is maintained throughout professional life and that there be satisfactory facilities for consultation in industrial hygiene, in toxicology and in the clinical specialties. We must foster much closer coordination between the industrial and the private practitioner so that ill or injured are referred for competent treatment early and return to work at the earliest possible opportunity. Much more effort should be expended on the problem of health education for the individual worker. These technics are becoming well understood, and personnel is being trained to carry out these activities. No substantial improvement in the health of the industrial population is likely to occur until each individual worker develops a personal interest in safe and healthful living in industry, at home and at play. It is in this direction that organized labor can make its most significant contribution to the health of its membership.

One inference is particularly plain—that the Council on Industrial Health redouble its efforts to bring employer, worker and physician closer together nationally, in the states and locally. Under such an arrangement, growth of interest would be facilitated, improvements in standards of service would suggest themselves and, as far as public relations are concerned, there would be an unparalleled opportunity for acquainting industry, labor and the community at large with the contribution which medicine has made to promote and conserve the welfare of a very vital segment of our population. In an approach of this kind we may discover a formula for the distribution of essential medical services to workers based on personal, professional and corporate initiative without the necessity for intervention by a paternalistic federal social security program.

Preventive Medicine: The Key to Victory and World Recovery

BRIG. GEN. JAMES STEVENS SIMMONS, U. S. Army: In spite of the war, the people of the United States are now healthier than at any other period in their history. This condition has been produced, not by chance, but by the united efforts of all the important health agencies of the nation. The history of American public health work may be divided into two main periods. The first period lasted from the beginning of the American Revolution until shortly after the Civil War, approximately one hundred years. The modern period in public health began about 1872, the year in which the American Public Health Association was established. Between 1872 and 1900 rapid advances were made in identifying bacteria and pathogenic fungi. The protozoan causes of the malarial fevers, tropical sore and amebiasis were known. The viruses of smallpox and foot and mouth disease had been discovered. Advances had been made in immunology, and the insect transmission of Texas cattle fever, filariasis and malaria had been demonstrated. This new knowledge created an increasing interest in epidemiology and the development of new methods for the control of disease. In 1939 the Surgeon General initiated the present Preventive Medicine Service in his Office, which consists of the divisions of Sanitation and Hygiene, Laboratories, Epidemiology, Tropical Disease Control, Venereal Disease Control, Sanitary Engineering, Occupational Health, Nutrition, Medical Intelligence and Civil Public Health. It also includes the Board for the control of Epidemics in the Army. This board, composed of more than 100 civilian consultants, is divided into ten special commissions, each concerned with a specific problem of disease control. The service has advanced by careful planning based on estimates of future possibilities, by constant accumulation of all available scientific knowledge, by vigorous application of the most promising control plans available and by initiating research on problems of immediate significance to the armed forces. The service has utilized every available facility, has enlisted the services of many highly qualified persons and has maintained close liaison with numerous governmental and civilian health agencies. These include the National Research Council, the Committee on Medical Research, the U. S. Public Health Service, the Bureau of Medicine and Surgery of the Navy, the Pan American Sanitary Bureau, the U. S. Department of Agriculture, the coordinator of inter-American affairs, the American Red Cross, the International Health Division of the Rockefeller Foundation and most of the scientific institutions and societies in the fields of biology, medicine and public health.

The disease death rates in our present far flung forces have not only been lower than those of World War I but lower than the annual death rate in the Army during any one of the last ten years of peace. The greatest difficulty encountered in the development of the Army's health program has been the inability to procure sufficient adequately trained personnel to carry it out. This indicates a serious defect in our present system of medical education.

Certain phases of the program have been handled by other medical agencies using their own personnel. For example, the U. S. Public Health Service, working through state and local health departments, has provided for extramilitary sanitation and disease control in the civilian areas adjacent to military reservations. Likewise, much of the medical research initiated by the Army has been coordinated through the National Research Council and the Committee on Medical Research and carried out by personnel of the U. S. Public Health Service, the Department of Agriculture and various nongovern-

mental scientific institutions. Sufficient numbers of trained persons have not been available. Malaria control officers have been especially scarce, and of a group of 480 who applied only 160 were acceptable on the basis of required training. Tropical disease experts have been even scarcer. Three thousand applications from bacteriologists produced only 200 who were acceptable. Eleven hundred applications from food and nutrition specialists found only 63 suitable. Thirteen hundred applications from biochemists yielded only 136. The Army therefore established a gigantic training program, which has provided short two to three month courses of instruction in the various health specialties. Since we entered the war, the Medical Department has given this type of health training to almost 30,000 officers and enlisted men. The nation faces a great opportunity to continue the health education of these persons and thereby place the public health of the United States on a broader and firmer basis than has ever yet been achieved by any nation in history.

A definite responsibility falls on our system of medical education. There must be incorporated into its various branches a greater appreciation of the value and need of the preventive aspects of medicine.

PANEL DISCUSSION ON POSTWAR INDUSTRIAL HEALTH

DR. R. L. SENSENICH, South Bend, Ind.: This panel will attempt to determine how industrial health services can be made to work in better fashion and to define the best means for maintaining interest after the stimulus of war production is over.

Medical Service in Postwar Industry

DR. HARVEY BARTLE, Philadelphia: The American medical profession must come to grips with the opportunity to lead industry and labor in a health service without prejudice, broad in its coverage, humane in its intent and progressive in character. Training facilities in our medical schools, extracurricular features in hospitals and special training in industry with emphasis on professional standards and ethics should be provided. Refresher courses should be arranged. The space that is being allocated to the medical service is a splendid index of a changed attitude. The preferable location should be near the main entrance and exit and the personnel, safety and employment divisions. Good housekeeping, light and ventilation are essentials. Equipment should be modern and complete. Preplacement examinations are the continuation of appraisals in the antepartum, maternal, infancy, preschool, school and college periods. The objectives are to facilitate placement and advancement of workers in accordance with individual physical and mental status, to acquaint the examinee with his physical status to guide him in improving and maintaining good health, to safeguard the health and safety of others, to discover and control unhealthful exposure and to promote cooperative support.

Physical and mental examinations give a factual basis on which all further medical service and attention are predicated. Therefore they must be accurate in appraisal, unprejudiced in evaluation and personal in principle. The mental, neuropsychiatric or personality appraisal is best carried on by inspection during the general physical examination. A set pattern or guide facilitates the record of these mental impressions at the conclusion of the examination, with the examinee being unaware of it. Health or periodic examination should be made at regular intervals, in which the procedure is the same, supplemented by previous records. Examinations after disabilities are obvious. With the great influx of women in industry in arduous work, a new task confronts the examinee. If the results of appraisal are expressed in mental, physical and neurologic levels, the work of a competent placement officer is facilitated.

Preventive medicine is a most important feature in our industrial medical service program, in coping with physical trends discovered on examination, existing diseases of a transmissible character and deleterious gases, substances and pollutions in the industrial environment. Hygiene and sanitation services are important in lighting, sanitation, good water, good food and good air and control of exposures to the elements, polluted air, chemical gas and other deleterious substances.

Workmen's compensation insurance and benefits involve three groups: the worker who seeks redress, industry, which must absorb the cost and the adjudicating agency. When abuse and dissatisfaction result it is directly traceable to arbitrary attitudes and actions of either of the first two parties, which in some instances can be controlled only by governmental agencies. Prevailing conditions can be ameliorated only by industry and workers selecting an agency to adjudicate, to which they relegate full power and whose decision they are willing to accept as final and binding, with the privilege of appeal. It naturally presupposes a third party—an insurance group to which a unified approach can be made, for justice and equity, by management and labor, both of whom shall be responsible for the payment of a per capita premium to the agency. This mutual financial responsibility will create a mutual and equal interest in fair awards. Free enterprise is injected into the problem in lieu of paternalistic governmental control and management. The third group will have a salutary effect on the other two in advancing preventive measures, corrective or rehabilitation measures, financial distress and placement.

Free choice of physician seems to mean that industry shall not impose its medical and surgical personnel. This has been overcome in a large measure by industry making available the leaders in medicine and surgery as their representatives. Is the average worker competent to select a physician? The industry responsible should control the agent whose services are sought. This presupposes the right of appeal.

DR. SENSENICH: Dr. Bartle has pointed out the essentials of industrial health service as developed by the Council. The purpose of this presentation has been to define the practical scope of industrial health service, methods of administration and the necessity for adequate trained personnel. Next we are going to hear from Mr. W. P. Jacob of Long Island City, who represents the National Association of Manufacturers. We are going to ask Mr. Jacob to speak to these points: Is industry generally willing to support a program of this kind or does it have one of its own? What arguments are necessary to convince employers, especially in small plants, that industrial health has real advantages and that this obligation should be voluntarily assumed?

Health in Industry

MR. W. P. JACOB, Long Island City, N. Y.: In 1937 there was established in the National Association of Manufacturers a Division on Health in Industry or general medical care. In 1940 a series of clinics was started which have multiplied, reaching at individual clinics from 200 to as many as 1,000 persons. They are educational clinics basically in the subject of industrial health, preventive to a great extent. In 1941 the National Association of Manufacturers published "Industrial Health Practices," followed by a check list on "How Do We Rate?" These were distributed to the rapidly growing association, which now includes about 10,000 members.

There has never been discrimination in the National Association of Manufacturers between large and small companies. Medical care in industry is primarily introduced for the benefit of those persons in the wage earning class who are unable to take care of themselves. The National Association of Manufacturers has constantly tried to search the field intelligently with the idea of bringing before the personnel of smaller companies industrial health's basic economy.

There is only one way to bring this health program before smaller industries in the postwar period, and that is to collaborate completely through the medium of small local societies. You will find the most whole hearted cooperation from industry, and that industry is cognizant of the importance of this in helping the medical profession get the smaller groups together to gain those benefits which we know are of vital importance to this subject as a whole.

Postwar Industrial Health

MR. ROBERT J. WATT, International Representative, American Federation of Labor, Washington, D. C.: The organized workers are convinced that postwar industrial health is dependent on the establishment of a system of health insurance which will provide adequate hospital and medical care. Paying for medical

care in small regular amounts through payroll deductions during employment is the best method to enable workers to earn insurance protection.

Workers agree with the action of the House of Delegates of the American Medical Association in September 1938, when it approved the following resolution:

> Your committee recognizes the soundness of the principle of workmen's compensation laws and recommends the expansion of such legislation to provide for meeting the costs of illness sustained as a result of employment in industry.

Under the present unemployment compensation system, workers in covered employments receive cash unemployment benefits if they are able to work but cannot find a job. The worker who reaches the age of 65 and is covered by the old age and survivors' insurance provisions of the act also receives monthly cash payments as long as he lives. The worker who loses his job because of injury or illness not connected with his work has no protection whether the illness lasts a few weeks or a few months or years. And every day in the United States between a million and a million and a half workers are absent from their jobs because of illness or injury. More than nine tenths of the time lost in industry for this reason is the result of sickness and accidents not covered by the workmen's compensation laws.

Sickness comes oftener and lasts longer and death comes earlier in the homes of the poor. Members of families with incomes under $1,000 have nearly twice as many days of disability as those in families with incomes of $3,000. Although the poor have greater and more frequent need for care, they get less. We cannot predict the costs of illness. Families can budget for their other expenditures but not for medical care. Nearly $4 billion was spent in 1942 on account of illness and disability—less than 4 per cent of the total national income. A spread of these expenditures through an insurance system would enable each family to obtain needed medical and hospital care on the basis of making a contribution proportionate to its income.

Time has demonstrated that our present methods are inadequate. Only in few cases can the worker whose earning power is crippled by accident or illness afford the care he needs. We agree with you on the necessity for prompt diagnosis and medical attention for those who are ill but remind you that the obstacles are almost insuperable for the great majority in the absence of a system of health insurance.

Workers want to establish a complete health insurance program for all wage earners. They do not agree that such insurance should be restricted to voluntary programs among the more prosperous, which leave a fringe of wealthy persons paying high fees to finance free clinics and noncollectible services rendered to the one third of our people.

The cooperation of the medical profession is essential to the efficient operation of any program providing for medical care. As a representative of an organization of nearly 7 million men and women, I can sincerely say that we are anxious for your help and advice. The choice of a doctor should be assured under any system and, even more important, the opportunity for change of physician should be left to the individual. Physicians and labor and management should take the initiative in getting started on a joint approach to the problem of promoting health and preventing accidents. We realize that it may not be a spectacular job, but the opportunity it presents should appeal to every worthwhile instinct we possess.

We don't believe that a system of health insurance would dull instincts of public service. We believe that health insurance would enable a doctor to practice medicine full time instead of having to be part doctor and part collecting agency and business man. We believe that the medical profession will achieve new heights of public service and personal unselfishness when we have a health insurance which enables a doctor to minister to those who need his aid most but who now are unable to get competent medical care. We urge you to give sympathetic consideration to this problem. Try to think of it in terms of the worker who is ill and, if adequate medical care is not available, may remain a burden to the family and to the community. We urge you to lend your great skill and resources in working out the best possible system in one of the few lands where we can still search for truth, progress and human service.

What Does the Division of Industrial Hygiene of the U. S. Public Health Service Have in Mind for the Postwar Period?

Dr. J. G. Townsend, Medical Director, Bethesda, Md.: The interest of government in raising the worker's health to an optimum level is reflected by the existence of an organization of about 500 persons in the U. S. Public Health Service and in thirty-eight industrial states where 95 per cent of the country's labor force is employed.

Postwar industrial hygiene needs can be approached from the federal, state and local levels, as follows: 1. Federal level. Field activities: The present work of the Federal Industrial Hygiene Division in coordinating the work on a nationwide basis should be continued. Statistics: Available data for the determination of industrial hygiene needs are limited. Moreover, adequate data useful in the evaluation of industrial hygiene services performed are practically nonexistent. Machinery with ample personnel and facilities should be set up in the various states, making possible the collection and analysis of data on nonoccupational sicknesses, occupational diseases and compensation for occupational diseases. 2. State and local levels: Minimum industrial hygiene services should be established in the states which now have no such services (Arizona, Delaware, Florida, Maine, Nebraska, New Mexico, South Dakota and Wyoming). Organizations in those units now established should be strengthened by increasing staffs, appropriations and other facilities by state financing. Industrial hygiene services at the district city and county health department levels should be decentralized and such services should be correlated with community resources. Present functions of industrial hygiene services should be expanded. Universities and schools should be stimulated to teach industrial health and medicine to a larger number of professional groups in order to meet the demand for more personnel.

The Essential Features of the Kaiser Plan

Dr. Sidney R. Garfield, Oakland, Calif.: The employers must concern themselves more and more with the nonworking portion of their workers' lives. The principles of the Kaiser plan are: 1. Prepayment. Industrial prepayment by the employer via the insurance company. Nonindustrial prepayment by the employee. 2. A comprehensive medical coverage. 3. Group practice. 4. Adequate complete facilities—offices, laboratories and hospital under one roof. 5. Nonprofit operation. Our plan using these principles fulfils the three conditions for industrial health service, namely comprehensive medical coverage at a cost employer and worker can bear, producing a new medical economy whereby the physician and hospital are better off if the worker never gets ill. The plan stands on its own feet, needs no endowment or charity, builds and pays for its hospitals, provides adequate income to the physicians and even provides funds for research and training of personnel.

I have been asked if the Kaiser Plan would protect against federalization of medicine. The members of our plan receive more medical care than the Wagner act would provide. They haven't the slightest need for government medicine. I doubt if the government would attempt to federalize medicine if the need did not exist. Mr. Kaiser envisions a postwar industrial health service as follows: 1. A health plan operated by the physicians themselves giving industrial and nonindustrial care to the worker. He needs medical care in either case. 2. An insurance plan which pays a weekly compensation to a worker who cannot work because of illness or injury, whether industrial or nonindustrial. He needs the income in either case. 3. An insurance plan which pays death benefits to the families of workers, whether cause of death is due to industrial or to nonindustrial factors. The family could use the funds in either case.

Such an industrial health service would have many advantages: It would do away with a lot of the disagreeable features of workmen's compensation laws, such as argument as to whether a case is entitled to medical care and compensation, since the worker would get this service in either case, whether industrial or nonindustrial. It would place medical care in the hands of the doctors, where it belongs, like it or not. We must admit that the insurance companies in many instances control industrial medicine. It would place insurance companies in their proper province—the handling of benefit payments and

death benefits and take them out of medical service, where they don't belong. It would place the government in its proper province of supervision and regulation—safety standards in plants and safety inspection. Since the worker and employer both would share in the entire cost of the program, they both would be interested in its proper management and usage.

Opportunities for Insurance in the Field of Industrial Health Education

MR. NEVILLE PILLING, Chicago: No agency can match the casualty insurance industry in the opportunities and in the capacities which it can bring to bear over a wide field of industrial effort on a national scale. Such benefits will be reflected directly in industrial earnings. Its worthwhileness to labor cannot be gainsaid, because improvement in health benefits workers individually and collectively. This is a type of program which organized labor is willing to support and to assist in a practical way. Therefore, with the special aids and facilities and with the sales point of view which exists and is part of the stock in trade of casualty insurers, it requires only a decision of top management to undertake this task.

Some of the well established facts are that the average man loses 9/10 day per annum from occupational causes and the average man losses 8 9/10 days per annum from nonoccupational causes. The successful control of nonoccupational absence depends largely on ability to influence human behavior.

The payroll is unquestionably the largest single factor in industrial costs. It follows that, as manpower is efficient or inefficient, so the payroll dollar is efficient or inefficient. Yet many managers pay attention to the effect of inefficient payroll dollars only to the extent of criticizing and vilifying labor, labor unions and administration policies and by dwelling on humanity's inhumanity to management and capital.

Insurance companies are in the business of protection, and true protection starts with prevention. Insurance can best serve industry and itself by being more useful to industry. To be more useful to industry it must be more useful to labor, since labor is the subject with which the compensation insurer must deal.

The health of the industrial worker and his family will almost certainly become a more serious problem in the future, owing to the increasing influence of old age and its diseases. With a total population increase of 7.2 per cent in the last ten years, the increase in those 65 or more years old was 35 per cent. Many of these people suffer from chronic, progressive and disabling disorders. There is only one practical cure—continuous and competent health education. This is the most vital component of any industrial health program. When combined with the necessary facilities from which the industrial worker can draw service as he needs it for himself and his family, it must bring benefits to labor and management.

The workmen's compensation insurance carrier can through its contact sources bring to industrial America a service the value of which is almost beyond the ordinary comprehension if the managements of those insurers will envision the possibilities and initiate the simple steps which are necessary to make this present idea a living and practical treatment of the first function of insurance protection, namely accident and disability prevention.

FEBRUARY 15—AFTERNOON

DR. LEVERETT D. BRISTOL, New York, Presiding

New Developments in Occupational Medicine—Aviation

MAJOR GEN. DAVID N. W. GRANT, the Air Surgeon, Washington, D. C.: Flight surgeons believe that the first step in the maintenance of good health, low accident rates and high efficiency is the careful selection of men best fitted for specialized tasks. Specialized physical standards are important in the selection of aircrews because of the severe strain flight imposes on their bodies. The Army Air Forces have accordingly formulated the now famous "64 examination" with rigorous standards for vision and hearing, for heart and circulation. The demands of constant attention to exacting operations, the frequent necessity for quick decisions of vital importance and the constant threat of disaster also place a severe nervous strain on an airman. The 64 examination accordingly includes a thorough search for defects in an applicant's nervous and mental characteristics. Only those who pass these exhaustive tests are admitted to training for flight duty. We have prepared a series of tests which eliminate applicants with inadequate native alertness and intellectual qualifications. After a man has been judged physically and mentally capable of performing the duties of an aircrew member, his special aptitudes are assessed by further psychologic and psychomotor tests. Those who demonstrate good judgment, facility in learning eye-hand coordinations and a high degree of emotional stability, with qualities of leadership, are preferred as pilots; accuracy of motor coordination in the execution of precise manipulations and quick reaction time meet the requirements for a bombardier; and interest in mathematics and logical, precise and exact habits of thinking suggest assignment as a navigator. At the present time nearly two hundred aviation physiologists in about fifty altitude training units teach all aircrews about the hazards of high altitudes and the need of their bodies for oxygen. Flight surgeons are given a nine weeks course of training in the School of Aviation Medicine at Randolph Field. Here they receive intensive instruction in problems unique to aviation. To supplement this training, competent neuropsychiatrists are assigned to each of the commands and to the overseas Air Forces for consultation and advice to the squadron surgeons.

An Institute of Industrial Health—Plans of a Proposed Development in the Medical Science Center of Wayne University

DR. EDGAR H. NORRIS, Detroit: It has been estimated that the long range program for a modern medical science center will involve an investment of from 50 to 100 million dollars. In Detroit, where we are building this institution, we have circumstantial advantages favorable to the development of a comprehensive educational program in the field of industrial health. The entire population of Detroit is geared to industry, and the social community typifies the purest form of industrial civilization yet known. In developing our Medical Science Center we shall not be restrained by the limitations imposed by physical plant; we will plan and build for the needs of the program. Our program will be enhanced by the careful selection of a faculty whose members must possess the vision and the realistic eagerness required to conduct an educational program of broad scope and of practical effectiveness.

A school of industrial health must typify the philosophy of preventive medicine. It should conduct its educational program largely for the benefit of graduate students. The educational experience must be one of instruction and of learning; it must combine teaching and research. The curriculum of the school of industrial health must be made as flexible as possible in order to permit its unhampered evolution. Emphasis in teaching must be placed on practical information. The organization of the school will include a number of divisions and departments.

With the establishment of such schools we may successfully advocate the prompt organization of a national qualifying board to certify those physicians who are adequately trained to work as specialists in the field of industrial health. Comprehensive course work must also be provided for claims and surety executives, for industrial hygiene engineers, for industrial sanitary engineers and for industrial safety engineers, for nurses and first aid attendants; special less extensive courses will need to be made available to executives, to foremen and to personnel directors.

A Visual Service for Small Manufacturing Plants

DR. HARRY S. GRADLE, Chicago: This article appears in full in this issue, page 253.

Medicine, Labor and Industry Join Hands in Philadelphia

DR. CHARLES-FRANCIS LONG, Philadelphia: This article appears in full in this issue, page 254.

The Conquest of Tuberculosis in Industry

DRS. HERMAN E. HILLEBOE and DAVID M. GOULD, Washington, D. C.: This article appears in full in this issue, p. 241.

FEBRUARY 16—MORNING

DR. CLARENCE D. SELBY, Detroit, Presiding

The New Movement in Industrial Sanitation

MR. MOHE H. SOLWORTH, Louisville, Ky.: This paper appears in full in this issue, page 243.

Health Education for Industrial Workers

DR. W. W. BAUER, Chicago: This article will be published in full in THE JOURNAL as a Council report.

Maladjustment in Industry

DR. FRANK F. TALLMAN, Lansing, Mich.: Reasons for a practical program of industrial psychiatry and mental hygiene include (*a*) general tension of war burden citizenry, (*b*) employment of people previously considered nonemployable or undesirable either because of age, sex or physical handicap, (*c*) training and placing large numbers of workers quickly, (*d*) the appointment to supervisory positions of individuals who are inadequately trained and, of more importance, temperamentally unsuited for leadership, and (*e*) employment of veterans of World War II, which implies emotional and psychologic problems.

Maladjustment in industry is a factor in absenteeism, accidents, discordant interpersonal relationships, inefficient work and low morale. Mental hygiene and psychiatry can contribute useful attitudes and technics in dealing with these problems.

The Story of Penicillin

DR. CHESTER S. KEEFER, Boston: Penicillin is one of the most powerful antibacterial agents that we have available for the treatment of a limited group of infections, usually those due to gram positive organisms and to gram negative cocci, especially the gonococcus and the meningococcus. It is of no value in the treatment of gram negative bacillary infections. With the passage of time we shall gain more information concerning the use of this material in the treatment of many infections which have carried with them a high fatality rate and many months and days of illness, so that we shall be able to reduce the fatality rates and to reduce the total number of days of illness of a great many patients.

The Detection and Treatment of Malnutrition Among Industrial Workers

DR. TOM D. SPIES, Cincinnati: This article appears in full in this issue, page 245.

FEBRUARY 16—MORNING

LIEUT. COL. RAYMOND HUSSEY, M. C., U. S. Army, Presiding

MEDICAL SERVICE UNDER WORKMEN'S COMPENSATION

Medical Developments in Workmen's Compensation—1943

J. W. HOLLOWAY JR., Chicago: The legislatures of forty-four states convened in regular session during 1943. Approximately 530 workmen's compensation bills were introduced during the year.

There are now fifteen states, and the District of Columbia, that provide compensation for occupational diseases under full coverage, namely California, Connecticut, District of Columbia, Illinois, Indiana, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, Ohio, Oregon, Washington and Wisconsin. Similar coverage is provided by the Longshoremen's and Harbor Workers' Act and by the United States Employees' Compensation Act.

In Virginia a commission of seven members was appointed to study the question of occupational diseases in relation to workmen's compensation coverage. Two members were to be appointed by the governor, one selected from the employer group and one selected from the employee group, two members from the senate to be appointed by the president thereof and three members from the house of delegates, to be appointed by the speaker thereof.

There is pending in Congress a bill introduced by Representative Tolan of California to permit chiropractors to treat the beneficiaries of the United States Employees' Compensation Act (H. R. 786). A subcommittee of the House Committee on the Judiciary scheduled a hearing on the bill November 10 last year. The chiropractors were represented by the director of education of the National Chiropractic Association, John J. Nugent, D.C., New Haven, Conn., and by the research director of that association, C. R. Weiant, D.C., of New York City. Three witnesses appeared for the medical profession, Dr. Barney J. Hein of Toledo, Ohio, an orthopedic surgeon with long experience in industrial medicine, a past president of the Ohio State Medical Association, and the present chairman of the committee on industrial health of that association; Dr. Wilburt C. Davison, dean of Duke University School of Medicine, and Congressman A. L. Miller of Nebraska, a doctor of medicine, a past president of his state medical association and a former state health officer of Nebraska. No further action has been taken with respect to this bill, but not only would its enactment dilute the quality of care made available to injured workmen who are entitled to the benefits of the United States Employees' Compensation Act but the federal recognition would be leaned on heavily by chiropractors in seeking similar privileges under state workmen's compensation laws.

The Interdependent Problems of the Administrator and the Industrial Surgeon

MRS. EMMA S. TOUSANT, Boston: Some of the interdependent difficulties of the industrial surgeons and the commissioners in dealing with injured persons are: 1. Failure of the doctor to create confidence in the injured workman. The workman is entitled to know what to expect after an injury. He is entitled to know the probable minimum period of disability. 2. Treating symptoms in hope that the cause will be reached, through lack of training or desire not to incur expense. The employee suffers from overtreatment if the diagnosis is not determined and sometimes even if it is. 3. A tendency to do exploratory operations. 4. Improper treatment which cannot be corrected without more surgery and then perhaps without success. 5. Lacking an objective. There seems to be a failure on the part of the industrial surgeon to create and stimulate an objective on the part of the employee. This objective should be to return him to industry at the earliest possible date.

We in Massachusetts appointed a medical advisory committee for the purpose of advising the board and being a liaison group between the board and the medical profession. This committee consists of seven members, all of whom are recognized in their various specialties. They give freely of their time, when asked, and their sole aim is to develop the medical aspects of compensation to their maximum efficiency.

Disability Evaluation—The Solution in Wisconsin

MR. VOYTA WRABETZ, Madison, Wis.: The purpose of the workmen's compensation acts in the various states was designed to give speedy and definite benefits to workmen who were injured in the course of their employment. Most compensation laws emphasize physical restoration, and that means giving to the injured employee all the medical treatment and hospital care that is necessary to cure and relieve him from the effects of his injury.

By placing the entire cost of compensation on industry we furnish the incentive to provide competent medical care. All disability must be evaluated, because on that depends the question of how much compensation an injured employee is to get. By far the largest number of cases involve questions of temporary disability only. The determination in such cases is relatively easy and involves the ability or inability of the worker to resume employment, the agreement by the employee that the physician is correct and the actual return to a job. Following this comes the payment of compensation due for disability sustained, the filing of proper reports to an insurance carrier and the filing of proper reports to the administrative agency that supervises the work.

The physician must maintain his position as physician or surgeon of the injured employee and not as an employee of the employer or insurance company, even though he is paid by them. It is by maintaining this position and by building up in the mind and heart of the injured man that he is going to be treated fairly and justly that we shall have the elimination of a lot of controversy.

The determination of permanent disability is more difficult. Every compensation law contemplates the payment of compensation for permanent disability on the basis of possible future wage loss. The physician must testify as to the possibilities of employment and the possibilities of handicaps as they apply to certain occupations. To determine many of these questions necessitates on the part of the physician not only a knowledge of the physiologic and anatomic damage but a thorough knowledge of industry itself, various occupations and the kind of work that is involved in various jobs so that when the employee whose disability he must now evaluate comes to him he must be in a position to tell him honestly and frankly and with confidence what kind of a job he can do with his disability.

The Industrial Commission in Wisconsin believes that disability laws should be made as simple as possible to administer and to understand. This problem was met when a recommendation was presented to the legislature that for certain classic disabilities there ought to be a definite amount of compensation payable based on a wage. In many states schedules of disability were adopted providing for a certain number of weeks of compensation for certain well defined disabilities.

Is the Present System of Occupational Disease Coverage Adequate?

DR. RUTHERFORD T. JOHNSTONE, Los Angeles: This article appears in full in this issue, page 271.

Second Injury Funds in Workmen's Compensation Laws

MR. J. DEWEY DORSETT, New York: Second injury funds were created to take care of the problem of compensation to handicapped workmen. It was felt desirable that these handicapped workers suffering second injuries should receive full compensation, but, at the same time, that the cost should not be placed on their last employers but rather on industry generally. Special funds, therefore, were created to which industry, as a whole, contributed either directly or through its insurance carriers. After payments for compensation for the second injury taken by itself ended, the balance, based on disability due to the combined injuries, was made payable out of these funds.

In some states, payments are limited to cases in which there has been a previous loss of a specified member followed by the loss of a similar member, while others are broader and include nearly all cases of permanent partial disability followed by further permanent partial disability, which in combination results in total disability. In at least one state the fund covers all permanent partial disabilities in which the second injury in combination with the first results in greater disability than that caused by the injuries taken by themselves. For example, one man may have lost several fingers of the hand and subsequently loses the remaining fingers. This would amount to the loss of the hand, whereas the second injury taken by itself would have amounted to a comparatively minor scheduled loss.

Second injury funds today are found in Hawaii, Idaho, Illinois, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Oklahoma, Rhode Island, South Carolina, Utah, Wisconsin and the District of Columbia and under the Longshoremen's Act. Five states created second injury funds in 1943. This is evidence of the increasing interest in funds of this type. No doubt this is due to the expected return of partially disabled veterans. Further legislation of this type may therefore be expected.

Supervising Standards of Medical Service for the Injured Workman

DR. D. J. GALBRAITH, Toronto, Ont.: No administrator of a compensation act, particularly if he is medically trained, can be other than depressed by the seemingly endless procession of workmen coming up for permanent disability awards, with stiff and useless hands, ankylosed major joints, amputation stumps to which artificial limbs cannot be fitted and the so-called traumatic neurosis: conditions which could in many cases have been prevented by adequate treatment in the early stages of their disability. It is our responsibility to make every possible effort to see not only that accident prevention work is vigorously carried out but that, if injured, the workman shall receive as nearly as possible the same type of treatment as we of the board would endeavor to supply to a member of our own family if he was similarly afflicted. In order to supervise treatment we have a full time medical staff of eleven young, well trained surgeons and medical men, headed by a part time orthopedic surgeon assisted by a part time radiologist. We have also two part time physicians trained in occupational diseases who are members of the staff of the department of health of the province and a staff of five full time physicians specially trained in silicosis work, who devote their full time to these examinations; a referee board of three specialists in silicosis, who each devote about two months to our work during the year; altogether twenty-three men, sixteen of whom are full time.

Most of the serious industrial injuries involve fractures. We secured as our chief surgeon one of the outstanding orthopedic surgeons of our province and, to assist him, a radiologist of unquestioned ability. Our medical staff examines the claim reports of all serious disabilities, gets in touch with the attending surgeons and discusses by telephone any cases in which there seem to be difficulties or in which the length of disability seems unusual. It encourages attending surgeons to use the telephone for discussion with our staff on any problem cases or those in which they desire assistance. The main problem now crying for attention is a more serious attempt to prevent the minor injuries from developing into major disabilities.

FEBRUARY 15—AFTERNOON

COMDR. HENRY H. KESSLER (MC), U. S. Navy, Presiding

REHABILITATION AND REEMPLOYMENT OF THE DISABLED

The Present Status of Rehabilitation in the U. S. Army

BRIG. GEN. FRED W. RANKIN, U. S. Army, and MAJOR WALTER E. BARTON, M. C., A. U. S.: This paper appears in full in this issue, page 256.

Vocational Training and Placement of the Veteran

MR. C. E. HOSTETLER, Hines, Ill.: This paper appears in full in this issue, page 258.

State Plans for Rehabilitation

MR. MICHAEL J. SHORTLEY, Washington, D. C.: This paper appears in full in this issue, page 263.

The Place of the Compensation Insurance Carrier in the Field of Rehabilitation and Reemployment of Disabled Servicemen

MR. B. E. KUECHLE, Wausau, Wis.: It is a recognized principle of rehabilitation applying equally to disabled servicemen and to disabled industrial workers that rehabilitation and retraining can best be accomplished in a former or related occupation, preferably in the service of the same employer. There is an impression that compensation insurers counsel against the employment of disabled persons, fearing that accident frequencies and accident severity among the disabled will produce adverse loss ratios. Is there any foundation on which these impressions may be based? The answer is a decided "no." Compensation insurance rates are based on nationwide experience modified by law variations in the individual states. Rates are adjusted annually and follow the actual experience by only two years. Therefore rates would promptly correct adverse experience if it did occur.

What are the facts about accident frequency and increased severity among the disabled? Authentic statistics probably will never be available because comparative studies involving similar hazards and equal man-hours of exposure as between disabled and nondisabled workers cannot be carried out. The better judgment of safety engineers and actuaries who have investigated the problem supports the view that accident frequencies among the disabled are about 5 per cent less than among the able bodied in similar occupations. Careful investigations have revealed many observations which make the handicapped not only a heretofore neglected source of manpower but, even more so, a steadying moral influence on physically normal fellow employees. Such persons are likely to be more careful in their movements than the others. If their disability is due to a prior accident, they have learned the lesson of safety the

hard way. They are grateful for the opportunity that has been given them and are eager to prove their loyalty by making good. They concentrate on their tasks, and the absentee problem is less acute than with the able bodied.

Second injury fund legislation, now found in nineteen states, should be extended nationwide to spread the compensation costs of isolated second injuries among the disabled over the entire industry. Medical preplacement examinations are a prime requirement because real vocational rehabilitation is determined solely by the question of whether the prospective employee under the handicap disclosed by such examination will be able to do his new job efficiently and safely; safely to himself, his fellow workers and the public.

Current Developments Affecting the Physician's Role in Manpower Utilization

DR. CLIFFORD KUH, Oakland, Calif., and BERT HANMAN, San Francisco: This paper appears in full in this issue, page 265.

Community Organization for Rehabilitation and Reemployment

DR. HAROLD VONACHEN, Peoria, Ill.: At the Caterpillar Tractor Company plant two years ago we realized that 4,000 to 5,000 people would be coming back to us from the service. We also realized that we had told these individuals that they would have jobs on their return. We decided to develop a program of human rehabilitation. A survey was made through every supervisor in our organization of the 20,000 existing jobs to determine those adaptable to certain handicaps. After we had completed that survey and with the experience that we had over a period of twenty-five years in the rehabilitation of our own employees, we started to hire handicapped persons. We employed 750 and kept records on them. The absentee record, the safety record and the production record of these handicapped individuals are above normal. We pay them the same rate of pay. We show no special consideration whatever. They work the second and third shifts as well as normal persons. They have a job to do and they do it well.

We employ 715 people today who have returned from military service. Some are overage, some had medical discharges, others had been injured in action.

The sooner industry begins to prepare for this job on a large scale the better off it will be.

FEBRUARY 16—AFTERNOON

DR. CLOSE HESSELTINE, Chicago, Presiding

WOMEN IN INDUSTRY

Report of the Committee on the Health of Women in Industry

DR. H. CLOSE HESSELTINE, Chicago: At the annual meeting of the American Medical Association in June 1942 the House of Delegates and the Section on Obstetrics and Gynecology each passed a resolution to establish a Committee on the Health of Women in Industry of the Section on Obstetrics and Gynecology. The function of this committee was advisory in nature, particularly to the Council on Industrial Health of the American Medical Association. A committee was appointed consisting of Dr. Max Burnell, Flint, Mich.; Dr. Jennings C. Litzenberg, Minneapolis; Dr. Goodrich C. Schauffler, Portland, Ore.; Dr. Robert E. Seibels, Columbia, S. C.; Dr. Louis Phaneuf, Boston, chairman of the section; Dr. Philip F. Williams, Philadelphia, secretary of the section, and Dr. H. Close Hesseltine, Chicago, chairman.

There is considerable controversy between industrial physicians and obstetricians and gynecologists as to the nature of the obstetric and gynecologic problems of women in industry. The committee unanimously has recommended that a preemployment pelvic examination should be a routine to evaluate the pelvis for major conditions, as tumors or prolapse. Obviously, where a vaginal examination was not feasible, a rectal examination would suffice. These findings, as all other medical findings, should be confidential, and the purpose of the examination should be for the protection of the prospective employee as well as for the protection of the employer. The findings should be of value in job placement. Furthermore, findings prior to employment may be particularly desirable and helpful subsequently in the event of medicolegal action. Pregnancies and their complications, dysmenorrhea, menopausal disturbance, sterility and gynecologic states in general should be managed by the employee's personal physician or obstetrician and gynecologist. Ordinarily, obstetric or gynecologic diseases are not attributed to employment. Subsequent study should reveal whether any types of employment, particularly where there is inadequate protection and safeguards, may produce complications or conditions of obstetric or gynecologic nature. It will be necessary also to determine whether or not there are any types of employment or working conditions which may aggravate existing obstetric or gynecologic ill health.

In December 1943 the United States Bureau of Census estimated that 16,800,000 women of 14 years and over were employed. This number of women is about 30 per cent of the total population (52,000,000) for the same age period.

Protection for Industrial Women—Progress and Prospects

MISS MARY ANDERSON, Washington, D. C.: Laws designed specifically for the protection of women cover such conditions as hours of work, night work, prohibited occupations, rest and lunch periods and plant facilities—seats, wash rooms and rest rooms. From 1874 on there was a slowly growing interest in establishing legislation about hours of work for women. Today the eight hour day and forty-eight hour week represent the standard recommended by nine of the most vitally important agencies of the federal government. Laws prohibiting employment of women on the night shift in factories had been enacted in eight states by 1918; by 1940, four more states were included in this group. The Fair Labor Standards Act, though not establishing the eight hour day, puts a premium on restricting weekly hours to forty by requiring the payment of overtime for hours worked in excess of forty. Applying to all workers in manufacturing and certain other establishments that do business in interstate commerce this law, though setting no actual limit, has had some influence in preventing excessive weekly hours for women.

In a summary of legislation enacted for the protection of working women since 1918, minimum wage laws must be noted. From twelve states in 1918 their number has risen to twenty-five by 1940. In 1918 the laws of eighteen states required rest periods and time for meals for manufacturing occupations in which women were employed. In 1940 twenty-one states had such laws. One day's rest in seven was provided for women in manufacturing establishments in the laws of twelve states in 1918 and of twenty-one states in 1940.

Since the outbreak of war a considerable number of states have passed emergency acts specifically authorizing the governor or the commissioner of labor to permit relaxation of labor laws. The situation now existing in some states we consider quite serious in view of the mounting evidence of overlong hours in terms of absence rates and turnover. Five major industrial states provide no maximum limit to daily or weekly hours. Attention to labor legislation in the war years has not been altogether on the unfavorable side. Eleven states have raised minimum wage standards for at least part of the employed women in their jurisdictions since the United States entered the war.

Industrial medicine and industrial hygiene have made great strides since the first war. More adequate medical and nursing staffs, enlarged facilities and better equipment in many factories and other war establishments are noteworthy developments. The outstanding contributions of the United States Public Health Service have encouraged and given impetus to studies undertaken by industrial physicians. We are more willing to recognize the need for protection against conditions that lead to fatigue or illness—protection against conditions that diminish the women's capacity to maintain efficient production, to say nothing of the permanent effect these conditions might have on their health. We are finding a decided change in attitude on the part of employers in greater effort toward adjusting conditions in the plant to accommodate women's needs, which show up in higher production, fewer accidents and less turnover. I refer especially to more general observance of rest periods, provision for seating, time for meals, and adequate wash room and rest room facilities. Progress is apparent in engineering jobs to

make them more suitable for the employment of women. Installation of labor saving devices and protective equipment has opened new jobs to women without exposing them to unnecessary hazards. The new administrative group in industry—the woman counselors—has become of immense importance in acquainting management with both the capacities and the limitations of women workers and in giving assistance of various kinds to the new and inexperienced woman.

I cannot urge too strongly the need for much more information than seems to exist at present on health problems of employed women, not only to meet definite situations now, but for the future. Women who will be at work in 1950 may number 17 million, compared with the 13 million employed in 1940, and a larger proportion of these women will be middle aged; in fact, the age group among employed women expected to register the largest increase in 1950 over 1940 will be women in their fifties.

Why Do Women Stay Away from Work?

DR. C. O. SAPPINGTON, Chicago: There is great difficulty in getting statistical data on the subject "Why Do Women Stay Away from Work?" Few plants have any data; few medical departments have it; few personnel departments have it. There is no standard method of recording the data. Our composite experience with 50,000 employed women in war industry gives the following percentage range of reasons for "separations": 20 per cent, change of residence (that is the average percentage in this range); marriage, 14; personal, 13; family problems, 12; industrial (due to the job, that is), 12; incompetence, 11; nonindustrial disability, 10; family disability, 7; reduction of force, 5; community problems, 3; other jobs, 2.

The ratio of days lost in this organization was as two in men to three in women, and the total time lost due to female disorders was 4½ hours per thousand annually. Employment separations of women show great variations in different establishments. Women have long shown significantly higher rates than men for separations due to respiratory and digestive complaints as well as other nonindustrial diseases. The reasons appear to be psychologic, rather than physiologic. Women are by nature more conservative of health, of personal health. Most people who have had experience with women will agree that they leave work sooner and will take better care of themselves than men. Judged by representative available data, lost time due to female disorders rates low in the scale of causes of separation from employment. The chief causes of separations apparently represent problems of social and economic adjustment. Although medicine, management and the community can aid materially, these problems are, in the final analysis—or appear to be—the personal responsibilities of the individual.

A Practical Health Program for Women in Industry

DR. FRED B. WISHARD, Anderson, Ind.: When the employment of women is contemplated, the plant should be cleaned up, the walls painted, adequate lighting fixtures installed and a good housekeeping program inaugurated. Noise should be reduced to a minimum, ventilation regulated and the jobs located where there are no extremes in temperature, such as adjacent to ovens or near service doors. Rest rooms should be provided with adequate toilet facilities. Each job should be surveyed and broken down into simple individual steps so that no one operation requires any great amount of mechanical skill. All excessive lifting should be eliminated so that the woman is not required to handle objects weighing in excess of from 15 to 20 pounds, avoiding any great amount of stooping or bending, as these movements tend to produce fatigue and muscle strain. The operator should be able to sit or stand at will. It is recommended that conveyor systems be installed whenever possible to eliminate carrying or if not practical, long tables may be used, along which the work is pushed. The height of the table affects efficiency, particularly when an operator is required to work at tables of different levels. Tall women working at low tables will develop back troubles, and if platforms are provided for short women to stand on these platforms constitute a safety hazard particularly where chairs are used, so it is better to segregate the women as to height.

In my experience there is no such thing as a "factory type woman," unless it means reasonable intelligence, fairly good health and a willingness to work. The U. S. Women's Bureau lists three general types of work for which women are particularly suited: (1) work requiring care and constant alertness, (2) work requiring manual dexterity and (3) work requiring skill but little physical exertion. There are three general ways in which applicants are checked: (1) special aptitude tests, (2) oral tests and (3) interview by a trained interviewer. Many employers insist on an eighth grade education, which assures sufficient intelligence to learn rapidly. Women with higher education become more quickly dissatisfied with routine, repetitive motions. The examining physician must be reasonably familiar with the various types of jobs in the industry for which he is examining applicants in order to make suitable recommendations for job placement. A six day week of eight hours per day appears to be the best working schedule for sustained efficiency.

Opinions vary about the matter of night shifts. Some women prefer these shifts because there is less noise and confusion and it gives them some time during the working day in which to shop. Where a husband and wife are both employed, it is generally better for them to be working the same shift. In some cases they prefer different shifts in order that one parent may be at home with the children. Many states have specific laws pertaining to the use of women on night shifts, and it would be well to be conversant with the statutes relative to this matter.

Swing shifts have certain advantages. The employees alternate working hours and are not kept on night turn for long periods of time. They have certain drawbacks, the most important of which is the fact that whenever the shift is changed the employee must readapt herself to the change in hours, particularly with reference to sleeping habits. It is not well to change shifts more frequently than every three months.

A woman should not try to work after the fifth month of pregnancy, because she has become less agile and more liable to falls and physical injury. Some young women whose husbands are in the military service are much better off physically, emotionally and economically when employed. A pregnant woman is more susceptible to industrial poisoning, presumably because her metabolism is accelerated by her condition. This should be considered in placing her on a job in which she comes in contact with chlorinated hydrocarbons, degreasing compounds and particularly lead. An employer can rule that all pregnant women shall quit as soon as their condition is determined, or he can decide each case on its own merits. It is best to make the wearing of a standard uniform a requisite of employment. This task will be much easier if the uniform is reasonably attractive. Twenty-six states have no laws forbidding the employment of women in specific occupations. Practically all prohibit their employment under detrimental conditions, which are interpreted as meaning those which would unfavorably affect their morals or potential capacity for motherhood.

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy are on the air each Saturday (3:30 Central war time, 2:30 Mountain war time and 1:30 Pacific war time).

The titles and guest speakers for the next three programs are as follows:

May 27. "Fatal Mistakes."
Speaker, Forrest E. Long, M.D., Director, School and College Safety Division, National Safety Council.

June 3. "Medicine in the Front Lines."
Speaker, Major Gen. George F. Lull, U. S. Army, Deputy Surgeon General, Washington, D. C.

June 10. "Frontiers of Medicine."
Speaker, Morris Fishbein, M.D., Editor of THE JOURNAL and of *Hygeia*.

THE CHICAGO SESSION

Radio Broadcasts

Arrangements are being made for a series of radio broadcasts in connection with the annual session of the American Medical Association during the week of June 12-16.

Owing to demands on radio time in connection with the war effort, radio time is unusually difficult to procure and therefore announcements of the exact time of broadcasts and the networks and stations over which they are scheduled may not be possible in advance. Radio publicity channels, however, will carry information. The daily newspapers should be consulted locally.

A series of radio talks and interviews is being arranged. Topics will deal largely with military medicine, and the speakers will be principally Army and Navy officers. The President and the President-Elect of the American Medical Association will be among the speakers.

Electrical Transcriptions To Be Demonstrated

The Bureau of Health Education has arranged for the playing of electrical transcriptions available for use by local medical societies for health broadcasting at the Palmer House during the annual session of the American Medical Association. Samples of available records will be played for visiting physicians on request in room 797. Announcements of these demonstrations will appear in the *Daily Bulletin*. Information will be posted at the headquarters of the Scientific Exhibit and at the Registration Headquarters.

Dr. W. W. Bauer, Director of the Bureau of Health Education, will be registered at the Palmer House. Messages can be left for him at room 797 or at the headquarters of the Scientific Exhibit to arrange for playing of the transcriptions; no special appointments will be necessary unless the Director's presence is desired. A competent attendant will be in charge.

Golf Tournament

The American Medical Golfing Association will hold its twenty-ninth annual tournament at Flossmoor Country Club, Chicago, on Monday, June 12.

Hours for teeing off: 7:30 a. m. to 2:30 p. m.

Dinner: 7 p. m.

Cost: $8 covers green fees, tournament fees and dinner. New fellows pay an additional membership fee of $3.

A PLAN OF ACTIVITY FOR A LOCAL COMMITTEE ON INDUSTRIAL HEALTH

ROBERT H. ELROD, M.D.
Chairman, Committee on Industrial Health, Toledo Academy of Medicine
TOLEDO, OHIO

The aims of the industrial health program in Toledo are as follows:

1. To urge the rank and file of physicians in our community to take an active interest in industrial health so that every practitioner will give some serious thought to this subject. In a great industrial center such as Toledo, every physician sooner or later is affected in varied degrees by the industrial health of the community. In the past these problems have been left largely to the local health department and to the few physicians closely associated with industrial practice. The average physician has felt that industrial health is not his individual concern. This view is entirely wrong, for industrial health is the group health of a large number of individuals, each of whom depends on his own family doctor for the solution of his health problems. We must depend on general practitioners to keep American workers healthy.

2. To arouse active support of industrial health by employers, employees and the public. To arouse real interest in the community it is necessary to convince it that an organized system of medical service and adequate medical supervision in industry is of very definite value to every one concerned. The efficiency of the workers will be greater, labor turnover will be less and lost time will be decreased. In addition, physicians will be acquainted with working conditions, will know many of the workers personally and will be ready at all times to give personal service in case of emergency. Definite and practical plans can be worked out to provide every small plant with good medical service on a part time basis. The smaller the plant, the less need be the physician's visits to the plant and the less time he will have to spend. The general public can be educated by personal interviews, at discussions with private patients, most of whom will be employees or employers, and through presentations by informed physicians at meetings, luncheon clubs, safety groups, foremen's clubs, women's organizations and parent-teachers associations. Our local committee will cooperate in furnishing speakers for such organizations.

3. To encourage our local academy of medicine to assign two or more meetings each year to programs on industrial health. Meetings of this kind, through discussions and interchange of ideas and methods, must result in the development of high standards and better appreciation of our local community problems. Here again the Committee on Industrial Health expects to initiate and carry through these meetings.

4. To encourage closer organization and working unity among physicians actively engaged in industrial practice. All of us have common problems and common objectives. Through closer organization, each can derive benefits from the experiences of others. Study and investigation can be promoted, new developments in industry can be described, and the scope and spoken functions of the industrial medical department can be clarified.

5. To offer advice and aid to physicians interested in organizing or improving an industrial health service. Assistance of this kind can be of particular value to physicians with limited experience in industrial health activity. In our opinion, advice and assistance should be given to industry through its appointed physicians rather than direct to management. Here, again, the smaller plants will present most of the problems.

6. To standardize preplacement examinations. Different types of work alter physical requirements, but standardization should occur wherever possible. An applicant for employment should be told of defects noted and urged to see his family physician about their correction. Men occasionally are refused employment without knowing why. The examinee should always be apprised of his defects and forcefully encouraged to have them corrected.

7. To take active leadership in a program of prehabilitation and rehabilitation of the physically handicapped, both now and after the war. The present urgent need of manpower in industry has made it necessary to accept many applicants for employment who have definite physical handicaps. It is the responsibility of the physician who makes the preplacement examination to look for various physical defects and to evaluate them fairly, both to the applicant and to the employer. We must make every effort to aid the disabled in assuming their just place in our economic system. The development of a flexible standard for physical requirement in industry will allow nearly every one to obtain gainful and healthful employment.

8. To encourage the employment of part time physicians in industry. It is the purpose of the local industrial health committee to encourage industry to maintain adequate medical service and supervision through the employment of part time rather than full time physicians. Such supervision can be satisfactory in every respect. Cooperation of two or more men can provide for the larger industries. Under this arrangement the American pattern of private practice should not be disturbed and there should be less danger of industry getting into the practice of medicine. The industrial physician should always keep in mind this fact, and his treatment of patients in industry should be confined to conditions resulting from employment. For all other ailments, the patient should be referred to the family physician.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

State Medical Election. — Dr. Charles A. Archer, De Queen, was named president-elect of the Arkansas Medical Society during its annual meeting in Little Rock, April 17, and Dr. Joseph F. Shuffield, Little Rock, was installed as president. Vice presidents are Drs. Hoyt R. Allen, Little Rock, Harry E. Murry, Texarkana, and Frederick W. Hames, Pine Bluff. Dr. Paul L. Mahoney, Little Rock, is treasurer and Dr. William R. Brooksher, Fort Smith, secretary. The 1945 meeting place will be decided later by the council.

CALIFORNIA

Thirty-Four Years as Health Officer of Richmond.— Dr. Charles R. Blake, who has been health officer of Richmond since April 1910, retired March 15, having completed almost thirty-four years of service. Dr. C. Martin Mills, who has been chief of the division of crippled children's service for the state department of public health for many years, has been named to succeed Dr. Blake.

Physicians' Aid Association.—The Los Angeles County Physicians' Aid Association, a nonprofit corporation, now has $18,171 available to carry out its work of assisting needy members of the Los Angeles County Medical Association. According to the bulletin of the county medical association a number of plans have been discussed as to methods of rendering care continuously in the most satisfactory manner, but no definite plan has as yet been adopted. Dr. Elizabeth Mason Hohl is president of the association, Dr. Paul D. Foster secretary and Mr. D. W. Ferguson executive secretary. Dr. Charles T. Sturgeon is chairman of the advisory committee.

DISTRICT OF COLUMBIA

Pediatrician Honored.—Dr. Joseph S. Wall, president-elect of the American Academy of Pediatrics, was guest at a testimonial dinner, April 15, given by his associates in recognition of his services as a "physician, teacher and leader." Dr. Wall, who is a past president of the Medical Society of the District of Columbia, has been a member of the faculty of Georgetown University School of Medicine for forty-seven years, joining the faculty soon after his graduation there in 1897. He was professor of pediatrics from 1912 to 1932, when he was promoted to be head of the department. Among the speakers at the dinner were Thomas Parran, surgeon general of the U. S. Public Health Service; Dr. John Allan Talbot, attending physician, and Charles D. Drayton, president, board of directors, Children's Hospital, and Dr. Fred R. Sanderson, president, district medical society.

ILLINOIS

State Medical Election.—Dr. Robert S. Berghoff, Chicago, was chosen president-elect of the Illinois State Medical Society during its annual meeting, May 18. Dr. Berghoff, vice president of the society, had been acting president since the death of Dr. George W. Post. Dr. Everett P. Coleman, Canton, was inducted into the presidency. Other officers include Drs. Harry M. Hedge, Evanston, and Walter C. Blaine, Tuscola, vice presidents, and Harold M. Camp, Monmouth, secretary-treasurer.

Chicago

Personal.—Dr. Morris Fishbein, Editor of THE JOURNAL, has been elected a member of the Chicago chapter of Sigma Delta Chi, national professional journalistic fraternity.——John E. Millizen, A.B., former business agent for the Chicago departments of the University of Illinois, has been named superintendent of the University of Illinois Research and Educational Hospitals, succeeding the late Dr. Major H. Worthington.

Northwestern Alumni Luncheon.—Drs. J. Roscoe Miller, dean of Northwestern University Medical School, and Herman L. Kretschmer, President-Elect of the American Medical Association, will be guests of honor at a luncheon session of Northwestern University Medical Alumni June 15. Tickets may be obtained from the registration desks of the Palmer House, the Stevens Hotel or at the alumni office, 303 East Chicago Avenue, Chicago 11. Reservations must be made in advance.

Rongetti Denied Reinstatement of License. — Dr. Amante Rongetti, whose license to practice medicine was revoked in 1932 when he was sent to prison following his conviction of manslaughter, was denied a license, May 16, by the Illinois Supreme Court. The decision upheld a Cook County Circuit Court denial of a mandamus writ (THE JOURNAL, Sept. 25, 1943, p. 222). Newspapers reported that Rongetti sought to set aside the revocation of his license by the state department of registration and education. He was released from prison May 9, 1942, it was stated, having served since 1931. Following his conviction for manslaughter on a charge of causing a death through an illegal operation, Rongetti was sentenced for a term of from one to fourteen years (THE JOURNAL, May 23, 1942, p. 356).

INDIANA

City Receives Gift of Hospital. — The Dr. W. B. Fletcher's Sanatorium, Indianapolis, has been given by the Indianapolis Social Hygiene Association to the city. The sanatorium has been operated since November as a city isolation hospital for the treatment of venereal disease. Dr. Norman M. Beatty, a founder and director of the hospital since its establishment as an isolation unit, has resigned to devote his full time to private practice.

Personal.—Dr. John H. Hare, medical superintendent of the Evansville State Hospital, has been given temporary charge of the Madison State Hospital, North Madison, until a successor to the late Dr. James W. Milligan can be appointed. ——Dr. Cecil K. Bender, Goshen, has been named health officer of Elkhart County.——Dr. Herbert D. Fair on March 17 was chosen president of the Muncie City Board of Health, succeeding the late Dr. Hugh A. Cowing. Dr. Theodore R. Hayes had earlier been named to succeed Dr. Cowing as a member of the board.——Dr. Shirley Benham Jr., La Porte, has been appointed health director of Clallam and Jefferson counties (Wash.), to succeed Dr. Emil E. Palmquist, Port Angeles, who has taken a similar position in King County.

MICHIGAN

Industrial Physicians Club.—At a meeting of full time industrial physicians of the Detroit Metropolitan area at the headquarters of the Wayne County Medical Society, May 2, the Industrial Physicians Club was organized to promote the advancement of industrial medicine and to foster a closer unity of fellowship among its members. All members of the group must be members in good standing of their respective county medical societies. Dr. Frank J. Jarzynka, Detroit, Bohn Aluminum & Brass Corporation, is secretary-treasurer of the new group.

Building Available at Eloise for Patients of Private Physicians. — Arrangements have been completed for the operation of a 71 bed hospital at Eloise for private patients of private physicians. Under the Lanham act the Federal Works Agency has approved $33,000 for deficit financing and $117,000 for remodeling and equipping Building B at the Eloise Hospital and Infirmary. The opening is scheduled for September 1. The community has contributed $15,000, which will be put into the remodeling and equipping pool, according to *Detroit Medical News*. The lease from the county of Wayne is for the "'duration and six months.' At the termination of the lease the building reverts to the county of Wayne, the equipment becomes the property of the People's Community Hospital, which has plans for the development of a new modern hospital in the area." The project resulted from a survey which revealed a shortage of physicians and hospital beds in what was determined a critical area. Apparently there was 1 effective doctor for every 5,000 persons and only 1 comparable hospital bed to every 1,468 persons. As the program developed 16 physicians voluntarily relocated in the critical spots of this area and the Wayne County Health Department, now functioning, was created. The Wayne County Medical Society, the Wayne County Board of Auditors and the Detroit Board of Health cooperated in this undertaking. In addition, the People's Community Hospital, which will operate the new institution at Eloise, composed of a number of prominent citizens from the western part of Wayne County, contributed time and effort to the development of the program. Mr. Charles B. Cozadd, Belleville, president of the corporation, contributed all legal services, and physicians of the area organized themselves into a voluntary group under the chairmanship of Dr. Albert R. Parker, Wayne.

MINNESOTA

Health Education in the Schools.—Minnesota schools are instituting a plan of regular health inspections, based on a program of Mr. Dean M. Schweickhard, Minneapolis, the new commissioner of state education. Part of the program is enlisting the aid of teachers and school nurses in making regular health examinations of their classes, these examinations to look for common indications of illness, physical defects or maladjustments and to report them to the family physician.

Cancer in Men.—The Minnesota Society for the Control of Cancer and Hennepin County Medical Society sponsored a symposium on "Cancer in Men" at a meeting in Minneapolis, April 4. The meeting was promoted by a committee of laymen. Speakers were Dr. Henry E. Michelson on "Cancer of the Skin"; Dr. Leo G. Rigler, "Cancer of the Stomach"; Dr. Ernest L. Meland, "Cancer of the Prostate"; John J. Bittner, Ph.D., "Cancer Research," and Dr. Maurice B. Visscher and Dr. William A. O'Brien, discussed research, diagnosis and treatment; all are of Minneapolis.

Personal.—Dr. Walter P. Gardner, superintendent of the Anoka State Hospital at Anoka, has resigned to return to private practice; he will enter a partnership with Dr. William H. Hengstler, St. Paul.——Dr. Emanuel S. Lippman, formerly a major in the medical corps of the Army of the United States, who has received a medical discharge, has resumed practice in Minneapolis.——Dr. John H. Remington, Rochester, has received the Paine Company Award of $100 from the Rochester Academy of Medicine for his paper "Amino Acid Alimentation."

Special Society Elections.—New officers of the Minneapolis Academy of Medicine include Drs. Ernest R. Anderson and Jay C. Davis, who will assume their offices of president and vice president, respectively, next autumn. Drs. Cyrus O. Hansen is secretary and Thomas J. Kinsella treasurer.——At a meeting of the Minneapolis Surgical Society recently Dr. Daniel A. MacDonald was chosen president, succeeding Dr. Herman O. McPheeters. Other officers include Drs. Robert F. McGandy, vice president, and John M. Feeney, secretary. ——Dr. Francis E. Harrington, health commissioner of Minneapolis, is the new president of the Minnesota Public Health Association, succeeding Dr. Sidney A. Slater, Worthington.

NEW YORK

State Medical Election.—Dr. Edward R. Cunniffe, New York, formerly president of the Bronx County Medical Society, was chosen president-elect of the Medical Society of the State of New York, and Dr. Herbert H. Bauckus, Buffalo, was inducted into the presidency. Dr. Scott Lord Smith, Poughkeepsie, was elected second vice president. All other officers were reelected.

Dr. Barlow Resigns at Winthrop Company.—Dr. Orpheus W. Barlow, since 1936 associated with Winthrop Chemical Company, Rensselaer, has resigned as chief pharmacologist. Dr. Barlow, before joining Winthrop, was instructor in pharmacology at Western Reserve University School of Medicine, Cleveland. A farewell dinner was given in his honor May 11 at the De Witt Clinton Hotel, Albany.

State Society Approves Medical Plan.—The Medical Society of the State of New York on May 8 authorized the creation of a full time bureau to arrange for a statewide plan of voluntary health insurance which it could direct and control, newspapers report. The society also unanimously endorsed the merger of two nonprofit groups in this field in the New York metropolitan area. The combined groups are Community Medical Care, Inc., a medical insurance affiliate of the Associated Hospital Service, which has 43,000 subscribers, and the Medical Expense Fund of New York, Inc., with 1,200 subscribers. The new group will be known as United Medical Services.

New York City

The Adam Miller Memorial Lecture.—"Calcific Aortic Stenosis" was the title of the Adam M. Miller Memorial Lecture presented by Dr. Howard T. Karsner, Cleveland, May 12. The lecture was given under the auspices of the Long Island College of Medicine, Brooklyn.

Osteomyelitis Patients Wanted for Treatment with Penicillin.—The Hospital for Joint Diseases invites the admission of patients with acute and chronic osteomyelitis for treatment with penicillin. Persons interested are asked to contact the admitting office of the hospital, Madison Avenue and 123d Street, New York 35.

New Head of Pharmacology Department at Columbia.—Dr. Harry B. Van Dyke, director of the division of pharmacology of the Squibb Institute of Medical Research, New Brunswick, N. J., has been appointed professor and head of the department of pharmacology at Columbia University College of Physicians and Surgeons, New York.

Doctors Hospital Tax Exempt.—The appellate division of the supreme court on May 12 ruled that Doctors Hospital, East End Avenue and 87th Street, was a hospital under the law and entitled to tax exemption on its property there. The decision reversed one made in 1941 that upheld the report of a referee that the hospital offered services only to a limited number and its free service was not sufficient to entitle it to tax exemption.

New Director of Henry Street Nursing Service.—Miss Marian G. Randall, from 1938 to 1941 assistant director of the Henry Street Visiting Nurse Service of New York in charge of records and statistics, has been appointed director of the service, effective June 1. Miss Elisabeth C. Phillips, acting director, will resume her former position as assistant director. The Henry Street Visiting Nurse Service, which was founded in 1893 by the late Miss Lillian D. Wald, is said to be the largest service of its kind in the United States.

Memorial Hospital Observes Sixtieth Anniversary.—Memorial Hospital for the Treatment of Cancer and Allied Diseases, 444 East 68th Street, observed its sixtieth anniversary on May 6. It was originally known as the New York Cancer Hospital, and its cornerstone was laid May 17, 1884. The hospital was formally opened Dec. 6, 1887. From its beginning Memorial Hospital gave particular attention to the study of cancer, this work being given impetus in 1902, when a gift of $100,000 by Mrs. Collis P. Huntington created the Collis P. Huntington Fund for Cancer Research.

Foundation Gives Mayor's Health Plan $150,000.—The New York Foundation has agreed to underwrite $150,000 of the $250,000 required to launch the health plan proposed by Mayor Fiorello H. La Guardia recently (THE JOURNAL, May 13, p. 161). The plan is presumably to cover all persons living or working in New York City and earning up to $5,000 a year. The preliminary studies, made by a special committee named by the mayor, were said to be financed by the New York Foundation and the Josiah Macy Jr. Foundation. According to the New York *Times*, May 15, the incorporation papers for the nonprofit organization that is to operate the plan will be filed within a week or two. David M. Heyman, president of the foundation, was chairman of the committee that submitted the health and medical insurance plan to the mayor. The New York Foundation, 61 Broadway, was established in 1909 with an initial endowment by Alfred M. Heinsheimer, New York, and operates in the fields of medical science, social welfare and education.

Portrait of Dr. Friesner.—On April 27 a portrait of Dr. Isidore Friesner, formerly president of the medical board of Mount Sinai Hospital and consulting otologist to the hospital, was presented to the hospital in commemoration of Dr. Friesner's seventieth birthday. The portrait has been commissioned as a tribute to Dr. Friesner's twenty-four years of service at Mount Sinai and to his pioneering work in establishing the relation of otology to general medicine. Dr. Friesner graduated at the Gross Medical College, Denver, in 1901. In 1921, a year after he joined the Mount Sinai staff, he became otologist. He was president of the medical board from 1927 to 1938. Under his direction of the department of otology, the training of residents in this field was started at the hospital. Dr. Friesner was one of the first to recognize the importance of microscopic studies in diseases of the ear and was responsible for the establishment at the hospital of a histopathologic department and laboratory facilities in connection with otology in 1928.

NORTH CAROLINA

Changes in Faculty at Bowman Gray—Dr. George T. Harrell Jr., associate professor of internal medicine at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, has been appointed director of the department, filling the vacancy that occurred when Dr. Tinsley R. Harrison accepted a position as dean of Southwestern Medical College of the Southwestern Medical Foundation, Dallas. Dr. William M. Govier, assistant professor, has been appointed director of the department of pharmacology and Dr. James C. Pass Fearrington, associate in clinical medicine, to associate professor in clinical medicine. According to Dr. Coy C. Carpenter, dean of the medical school, a $2,500,000 program of expansion has been approved for the North Carolina Baptist Hospital, Winston-Salem.

OREGON

Changes in Health Officers.—Dr. Cecil W. McCain has been appointed health officer of Hood River County to succeed the late Dr. Claude C. Chick.——Dr. Wayne S. Ramsey, Portland, has been appointed Deschutes County health officer with headquarters in Bend.

PENNSYLVANIA

Physician a Nonagenarian.—Dr. James S. Louthan, Beaver Falls, celebrated his ninetieth birthday April 28 by holding office hours as usual, newspapers reported. Dr. Louthan has been practicing since 1882. He has been physician for the Pittsburgh and Lake Erie Railroad since 1892.

Philadelphia

Incidence of Malaria.—Nine cases of malarial fever were reported in the first week to the Philadelphia department of public health, according to the Philadelphia *Inquirer*. Not a single case of the disease was reported during 1943. Of the 105 cases listed so far this year by the health department, virtually all are soldiers, sailors, marines and other members of the armed services returned from duty in the Southwest Pacific, it was stated.

Union Medical Center Opened. — The Union Medical Center, established at 22d and Locust streets by the International Ladies' Garment Workers' Union, was recently dedicated. It is said to be the first of its kind in the state. Dr. Joseph A. Langbord is in charge of the medical staff, which includes Drs. William Bates, Jacob B. Feldman, Samuel Bruck, Joseph M. Fruchter, Frank Walton Burge, Winifred B. Stewart and Catharine Macfarlane.

Schireson Investigation Continues.—In a statement to the press, April 28, Dr. Paul R. Correll, Easton, Pa., newly appointed chairman of the state board of medical education and licensure, said that Dr. Henry J. Schireson will be summoned for a hearing to show cause why his license to practice medicine should not be revoked as soon as the inquiry now being conducted by the state board is completed, perhaps within a month or six weeks (THE JOURNAL, May 13, p. 161).

Dr. Mudd Receives Guggenheim Award. — Dr. Stuart Mudd, professor of bacteriology at the University of Pennsylvania School of Medicine, at a dinner at the University of Pennsylvania Club in New York recently was presented with the annual William Guggenheim honor cup for his "outstanding services in the field of blood plasma development, with especial reference to the system now used by the armed forces of the United States in all battle areas." The presentation was made by Edgar B. Landis, president of the New York Club and toastmaster at the dinner. Dr. Mudd in his acceptance speech acknowledged the work of his associate Earl W. Flosdorf, Ph.D., assistant professor of bacteriology at Pennsylvania.

TEXAS

University News.—Dr. Arthur Grollman, research professor of medicine and associate professor of physiology and pharmacology at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., has been appointed assistant professor of medicine at the Southwestern Medical College of the Southwestern Medical Foundation, Dallas, effective July 1, and Andres Goth, research assistant in pharmacology, Vanderbilt University School of Medicine, Nashville, Tenn., to assistant professor of pharmacology.——Drs. Marvin L. Graves and Walter H. Moursund Sr., Houston, received the honorary degrees of doctor of science and doctor of laws, respectively, from Baylor University during the first commencement exercises since the college of medicine began operations in Houston. Dr. Graves, who is professor emeritus of internal medicine at the University of Texas Medical Branch, Galveston, addressed the commencement on "Pro Bono Publico." Dr. Moursund is dean of the medical school at Baylor.

UTAH

Dr. Charles Johnson Resigns at Utah.—Dr. Charles C. Johnson has resigned as professor and head of the department of pharmacology and physiology at the University of Utah School of Medicine, Salt Lake City. The Salt Lake City *Deseret News* stated that the board of regents adopted a resolution acknowledging Dr. Johnson's many years of service and granting him a one year leave of absence on part time pay, effective July 1. Leo T. Samuels, Ph.D., associate professor of physiologic chemistry, University of Minnesota Medical School, Minneapolis, has been named professor and head of the department of biochemistry at the school, it was reported.

VIRGINIA

Dr. Horsley to Receive Honorary Degree.—Dr. J. Shelton Horsley, surgeon in chief at Saint Elizabeth's Hospital, Richmond, is to be awarded the honorary degree of doctor of science at the next commencement exercises of the Medical College of Virginia, Richmond, September 23.

Dr. Jarrett Goes to Touro Infirmary.—Dr. Lewis E. Jarrett, medical director of Medical College of Virginia, Hospital Division, Richmond, for eleven years, has resigned to accept the position of superintendent of Touro Infirmary, New Orleans, succeeding Dr. Asahel J. Hockett. Dr. Jarrett received his degree in pharmacy at the medical college in 1922 and his degree in medicine in 1932. He became assistant superintendent in 1924 and director in 1933. His resignation will be effective June 1.

GENERAL

Society News. — The Tufts Medical Alumni Association will hold a dinner during the meeting of the American Medical Association at the Palmer House, June 14, at 6:30 p. m. Dr. Harry A. Olin, 6060 Drexel Avenue, Chicago, is local chairman of the dinner. Dr. Harry Blotner, Boston, is secretary of the alumni association.

Association for the Advancement of Science Plans 1944 Session.—The American Association for the Advancement of Science, after two years suspension of meetings, plans to resume its annual meeting, the 1944 session to be held in Cleveland, September 11-16. Hotel headquarters will be the Hotel Statler, while the general program will be held in the Cleveland Public Auditorium. Forest R. Moulton, Sc.D., Smithsonian Institution Building, Washington 25, D. C., is the permanent secretary, and Sam Woodley assistant secretary.

Knudsen Award Goes to Dr. Vonachen.—On May 11 the Knudsen Award of the American Association of Industrial Physicians and Surgeons was presented to Dr. Harold A. Vonachen, medical director of the Caterpillar Tractor Company, Peoria, Ill., for initiating and developing a plan to fit disabled workers to jobs and jobs to disabled workers, started in his own plant two years ago and developed through close cooperation with the medical personnel and safety division and the training and manufacturing department. When the success of the plan at Caterpillar was assured, it was carried forward to the community, where seventeen community organizations are represented on the executive committee of what has now become the Peoria plan for human rehabilitation of civilians and military.

Tri-State Elections.—Dr. Floyd R. N. Carter, South Bend, Ind., was chosen president of the Northern Tri-State Medical Association, including the states of Indiana, Ohio and Michigan. He succeeds Dr. E. Benjamin Gillette, Toledo, Ohio. Other officers include Drs. Fredrick F. Yonkman, Detroit, vice president, Don F. Cameron, Fort Wayne, Ind., treasurer, and Dr. John L. Stiffel, Toledo, secretary.——Dr. George H. Bunch, Columbia, S. C., was chosen president-elect of the Tri-State Medical Association of the Carolinas and Virginia at its annual meeting in Charlotte, N. C., and Dr. Karl B. Pace, Greenville, N. C., was installed as president. Dr. James M. Northington, Charlotte, is the secretary. The 1945 session will be held in Columbia.

Meeting of Genitourinary Surgeons. — The fifty-sixth annual meeting of the American Association of Genito-Urinary Surgeons will be held at the Red Lion Inn, Stockbridge, Mass., June 8-10, under the presidency of Dr. Benjamin S. Barringer, New York. Included among the speakers will be:

Drs. Charles M. McKenna and Joseph H. Kiefer, Chicago, Unusual Anomalies of the Genital Tract: A Case Report.

Drs. Clyde L. Deming and Gustaf E. Lindskog, New Haven, Conn., Papillomatosis of Bladder and Entire Urethra. Infiltrating Cancer of Bladder. Late Pulmonary Metastases. Successful Pneumonectomy.

Drs. Roger C. Graves and Robert S. Thomson, Boston, Total Cystectomy for Carcinoma: Indications and Technic.

Dr. Gordon S. Foulds, Toronto, Renal Calculus with Parathyroid Adenoma.

Drs. William F. Braasch and Ruy Goyanna, Rochester, Minn., Hypertension and Its Relation to Renal Ptosis.

Dr. Vincent J. O'Connor, Chicago, Long-Standing Hydronephrosis with Associated Urological Pathology: Interesting Case Report.

Industrial Fatalities.—More than 2 million workers are killed or injured on the production lines of the nation every year, according to a statement by John M. Fewkes, chief of the industrial health and safety section of the War Production Board. Deaths and injuries on the job are occurring at the rate of 270,000,000 lost man-days a year. The wage loss, medical expense and overhead cost of insurance associated with 1942 occupational accidents totaled 1 billion dollars, while the indirect losses, estimated at $1,300,000,000, bring the total of economic costs of occupational accidents to about $2,300,000,000

in this one year. It was stated that industrial accidents from Pearl Harbor to January 1 total 37,600 killed, or 7,500 more than military dead, with 210,000 permanently disabled and 4,500,000 temporarily disabled, or 60 times more than military wounded and missing. Mr. Fewkes stated that injuries account for 10 times as many lost man-hours as strikes. Mr. Fewkes's analysis of the situation was presented at the West Virginia Safety Conference in Charleston, W. Va., recently.

Special Society Elections.—Dr. Roy W. Scott, Cleveland, was recently chosen president of the American Heart Association. Other officers include Drs. Howard F. West, Los Angeles, vice president; Howard B. Sprague, Boston, secretary, and George R. Herrmann, Galveston, Texas, treasurer. ——Dr. Alexander W. Lescohier, Parke, Davis & Co., Detroit, was elected president of the American Drug Manufacturers Association at its annual meeting recently. Vice presidents are John S. Zinsser, Sharp & Dohme, Philadelphia, Robert Lincoln McNeil, McNeil Laboratories, Philadelphia, and Carleton H. Palmer, E. R. Squibb & Sons, New York. Donald S. Gilmore, Upjohn, Kalamazoo, Mich., is treasurer and Carson P. Frailey, Albee Building, Washington, D. C., is the secretary.——Dr. Cyril N. H. Long, Yale University School of Medicine, New Haven, Conn., was recently elected president of the American Society for Clinical Investigation.——Dr. Warfield T. Longcope, Baltimore, was elected president of the Association of American Physicians at its annual meeting in Atlantic City, May 9.

More Prescriptions Written in 1943.—The average physician wrote 1,818 prescriptions in 1943 as compared with 1,266 prescriptions written the previous year, according to the fifth annual prescription census recently completed by *Drug Topics* and reported in *Drug Trade News*. The figures represent the total prescriptions filled, minus the refills, from a group of 89,784 physicians reported in private practice in 1943. This group totaled 110,800 in 1942. The report stated that the prescription business last year marked an all time high in the number of prescriptions filled and in dollars. It stated that the prescriptions per capita jumped from 1.66 in 1942 to 1.99 in 1943; prescription dollars per capita rose from $1.69 to $2.08; the price of the average prescription was $1.04 in 1943, showing an increase of only 2.9 over 1933. Vitamin prescriptions accounted for 17.5 per cent of all prescriptions filled in 1943. More than 90 million total refills were handled. More than 30 million narcotic prescriptions were filled and more than 40 million vitamin prescriptions were filled. The rate of increase in vitamin prescriptions filled in 1943 was not as great as it was in 1942, yet this type of prescription work has become so large that it now represents 17.5 per cent of all prescriptions.

Orthopedic Meeting.—The fifty-eighth annual session of the American Orthopaedic Association will be held in Hot Springs, Va., June 1-3, under the presidency of Dr. A. Bruce Gill, Philadelphia, with headquarters at the Homestead Hotel. One session will be devoted to various aspects of poliomyelitis, the following speakers participating:

Dr. John R. Paul, New Haven, Conn., Epidemiology of Poliomyelitis.
Dr. R. Plato Schwartz, Rochester, N. Y., Recent Experimental Studies of Poliomyelitis.
Dr. Robert W. Johnson Jr., Baltimore, Results of Modern Methods of Treatment of Poliomyelitis.
Dr. Ralph K. Ghormley, Rochester, Minn., Abstract of Report of Committee Investigating the Kenny Method of Treatment.

Another session will be devoted to a discussion of "Minimum Requirements for Bone Grafts." Various speakers announced in the preliminary program include:

Dr. David M. Bosworth, New York, Posterior Approach to the Femur.
Dr. Le Roy C. Abbott, San Francisco, Surgical Approaches to the Knee Joint.
Dr. Henry W. Meyerding, Rochester, Minn., Giant Cell Tumors Treated by Excision and Bone Graft.
Dr. Marius N. Smith-Petersen, Boston, Osteotomy of the Spine.

Surgeon General Norman T. Kirk of the U. S. Army will summarize the various presentations on amputations and front line surgery.

Labor Conference Urges Socialized Medicine.—The International Labor Conference, meeting in Philadelphia, May 11, recommended to its member governments a program "providing for cradle to grave socialized medicine." The recommendation is not binding on member governments, it was pointed out, but speakers expressed the hope that it would be carried forward in the respective countries. According to the New York *Times* the recommendation on medical care, embracing 114 points to guarantee that medical and dental services, both general and specialized, would be available to all, whether employed or indigent, was adopted by a vote of 55 to 5. Such care would be provided either through social insurance, with a supplementary provision on social assistance to meet the requirements of needy persons not yet covered by social insurance, or through a public medical service. All care and supplies should be available at any time and without time limit, when and as long as they are needed, subject only to the doctor's judgment and to reasonable limitations as may be imposed by the technical organizations of the service. It was stated that the beneficiary should have the right to "select his family doctor and dentist among the participating general practitioners and subsequently to change his family doctor or dentist, subject to giving notice within a prescribed time, for good reasons, such as lack of personal contact and confidence." The details, as proposed, include "the suggestion that traveling clinics in motor vans or aircraft, equipped for first aid, dental treatment, general examination and possibly other health services such as maternal and infant health services, should be provided for regions with a scattered population."

LATIN AMERICA

Health Activities in Latin America.—*Plans for New Medical School at Puerto Rico.*—On May 9 Governor R. G. Tugwell approved legislation authorizing the Superior Educational Council to organize a medical school in the University of Puerto Rico and appropriating $500,000 as an initial contribution toward establishing the school. Jose M. Gallardo, commissioner of education, is reported to have said in a preliminary statement that he knew of no reason why the necessary equipment for the school could not be obtained, pointing out that, since the university already had a complete premedical course, the School of Tropical Medicine, San Juan, might be utilized until facilities are completed at Rio Piedras.

New Health Legislation.—A bill appropriating $500,000 to establish a Puerto Rico Cancer Institute is now awaiting the signature of Governor Tugwell, it is reported. Dr. Isaac F. Gonzalez Martinez, president of the institute, left Puerto Rico recently to make a study of various cancer institutions in the United States, Mexico, Brazil and Argentina.——Legislation approved May 9 by Governor Tugwell provides $1,168,400 to establish, operate and maintain centers and rehabilitation institutions for the treatment of venereal diseases, under the supervision of the department of health. Another bill makes it a misdemeanor for any person who knows or has reason to believe he is suffering from a venereal disease not to submit to a "licensed physician's treatment within ten days following the day on which he learned of his affliction" or a licensed physician notifies him that the treatment is completed. The bill, further, gives health officers authority to examine any person within their respective jurisdictions who, they believe, "on reasonable ground" has an infectious venereal disease and is likely to infect another person. The suspected person, however, may apply to a magistrate for a restraining order, and no examination shall then be made except on order of the magistrate.

Dr. Houssay's Instituto de Biología y Medicina Experimental.—Dr. Bernardo A. Houssay, formerly professor of physiology, University of Buenos Aires, announces in *Science* that the laboratory which he has organized with the assistance of the Rockefeller Foundation is called Instituto de Biología y Medicina Experimental (THE JOURNAL, April 15, p. 1145). The unit is located at Calle Costa Rica 4185, Buenos Aires. Members of his staff include Drs. Eduardo Braun Menéndez, Virgilio G. Foglia, Juan T. Lewis and Oscar Orías. Dr. Houssay had given his personal library to the University of Buenos Aires before his dismissal from the faculty (THE JOURNAL, Oct. 30, 1943, p. 570) and states that the new institute is in need of reprints and other scientific literature.

Medical Congress.—The second Pan American Congress of Ophthalmology, planned for Montevideo, Uruguay, November 3, has again been postponed. Dr. Harry S. Gradle, Chicago, president, announces that this action has been taken at the recommendation of the government of Uruguay and the U. S. Department of State. The congress is tentatively planned for the fall of 1945.

Essay Contest.—The Luis Morquio Foundation announces its second contest for the best papers on "education and medicosocial assistance of children of preschool age." The contest closes Sept. 24, 1945. The address of the foundation is Avenida 18 de Julio, Número 1648, Montevideo, Uruguay. The essay should be written in Spanish.

Medical Murals by Rivera.—The unveiling of murals by Diego Rivera, depicting the history of cardiology from the earliest days to the present, was a feature of the recent opening of the Mexico City Institute of Cardiology (THE JOURNAL, May 13, p. 163).

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 22, 1944.

"The Indirect War Losses" of Europe

After the last great war it was found that "indirect war losses" greatly exceeded direct casualties. The indirect losses included the children who would have been born but for the war, the children dying in infancy as a result of wartime increased infant mortality and the civilians who died as a result of wartime epidemics and a wartime increase in the general death rate. For the present war the figures are as yet too incomplete to assess fully "the indirect war losses" in occupied Europe. But enough material continues to be collected to give some idea of their appalling extent. In France the birth rate for 1940 and 1941 was 10 per cent below the previous low birth rate. This meant in the two years 120,000 unborn children. The condition in Belgium is worse: 20 per cent below the prewar level. The Belgian urban population subsists on about one third of the minimum diet prescribed by the League of Nations. The Netherlands, on the other hand, seems to have been spared such great losses.

Nor have the Axis powers escaped. In Rumania the birth rate in 1941 was 15 per cent below the prewar level. Italy in 1941 and 1942 was reduced 13 per cent in its birth rate, and Germany in the three years 1940-1942 was reduced 14 per cent. The German deficiency has now risen to 25 per cent. These are only partial figures. The total of Europe's "unborn children" must now number several millions.

To this loss must be added that due to increased infant mortality. In Germany this was 6 per cent higher in 1940 and 1941 than in the two preceding years. In Belgium the increase was 13 per cent. Tuberculosis takes a great toll of Belgian children. After one winter of German occupation the deaths from tuberculosis increased 57 per cent and the great majority of the new victims were children. In France the 1940-1942 infant mortality was over 20 per cent increased. In refugee camps children were reduced to 900 calories a day even in 1941. Eight million children were without shoes; 75 per cent of school children lost weight during 1941. They are over a year behind children of normal development. Eighty per cent of French babies suffer from rickets. Nearly all the skin tests performed on Paris children showed tuberculosis definitely. In Italy infant mortality in 1941 was 18 per cent higher than in 1939. In the Netherlands the increase was 20 per cent, though the Dutch are still the best off in occupied Europe. The infant mortality is the only numerical measure available for health trends. But, as the International Labor Office points out in its report, the brunt of deterioration in diet is borne by adolescent children, who are especially susceptible to tuberculosis. The average town child in occupied Europe is underfed, short of vitamins and too hungry to concentrate. The father may be dead, a prisoner of war or a deportee, and the child may spend the day in search of food, too weak for exertion, without soap to keep clean. It is on this decimated enfeebled generation that the reconstruction of Europe will depend.

Stray scraps of news throw light on the terrible conditions. Bread is "diluted" with hydrolyzed straw or chestnut meal from which the oil has been extracted. Last year in France the average family got fish once in three months. The French "national coffee" may contain the crushed seeds of tomatoes, blue lupins, apples, pears, grapes and berries, not to mention acorns and waste from artichokes after the spirit has been extracted. The Dutch are eating dog and cat meat. In Greece, Poland and occupied Russia the conditions are much worse. Bread, of sorts, is the only food available in Greece; proteins are almost wholly lacking. In a land ravaged by typhus the Poles subsist on less than a fourth of the minimum requirements of food and the lack of potatoes, their staple, is serious.

Failure of the Defense of Schizophrenia in a Criminal Case

A woman aged 47, though the secretary of two colliery companies and a magistrate, was sentenced to six years' penal servitude for theft of $495,000, falsification of accounts and forgery. She indulged in no vices on which money could have been spent. She had no men friends. The money went in extravagance and playing the lady bountiful. A psychologic defense was attempted. Two psychiatrists gave evidence that she had a "split mind": that she had been in a psychoneurotic state for several years. Thus she really had two personalities. This caused the judge to exclaim "Am I trying one or two persons?" To establish the claim for the verdict "guilty but insane" it had to be shown that at the time she committed the crime she was laboring under a defect of reason from a diseased mind so as not to know the nature of the act she was doing or, if she did know it, she did not know that it was wrong. Her lawyer said that if the jury had any idea that the psychiatrists were talking nonsense it would have been easy for the prosecution to produce a superior or equal weight of scientific evidence.

The judge, in summing up, said that he could conceive a suggestion that such cases should be tried by psychiatrists, but that was not the law. If the jury agreed with the psychiatrists they would probably think with them that this was a unique case. It would be historic if some one responsible for diverting the funds of the companies for which she was responsible for a period of seven years or longer to the amount of nearly $500,000 was not really responsible for it. But the jury might think that it showed great nerve, audacity and clear-headedness to produce a state of affairs in which the cash books appeared to balance to the scrutiny of the auditors. She was found guilty, with the result mentioned.

Good Health of the Nation in Spite of the War

The improved health of the nation during the war years reported in previous letters to THE JOURNAL continues. At a press conference Sir Wilson Jameson, chief medical officer of the Ministry of Health, said that as far as could be judged from vital statistics our population as a whole was standing up extraordinarily well to the war effort. Early last November signs of influenza began to show themselves, and in the week ended November 20 there were more than 100 deaths from influenza in the 126 large cities of England and Wales. The figures rose until in the two weeks ended November 20 there were over a thousand deaths. This was the only influenza epidemic in the war years. The last comparable epidemic was in 1936-1937. The recent epidemic petered out two weeks earlier than that one.

American Army Doctors and Nurses Help in the Treatment of British Civilians

Owing to demands of the fighting forces for medical officers there is a great shortage of doctors for civil practice. American army doctors and nurses have begun to help in supplying the deficiency while waiting for active employment in their own army. In a hospital at Stockport a surgical ward had to be closed for want of staff. It has been reopened with a staff of American doctors and nurses. American doctors have also attended a number of cases of childbirth.

Smallpox in Britain

A number of cases of smallpox have occurred in the Mount Vernon Hospital near London. They originated from a patient who had recently returned from abroad. Five nurses and another patient were affected. A woman visitor to the hospital also caught the disease and died. This is the first time

since 1942 that smallpox has occurred in London. Smallpox has ceased to be endemic in this country, but cases are imported from abroad and give rise to outbreaks of the disease, which are controlled by vaccination of contacts. A serious outbreak occurred in Glasgow in 1942 from this cause. A ship from Bombay arrived in the Clyde on May 29 when an electrical engineer was found to be suffering from smallpox, which proved fatal. Cases followed in the crew and passengers of the ship and in the general population. The outbreak was brought under control by energetic vaccination.

PALESTINE

(From Our Regular Correspondent)

March 15, 1944.

The Thirteenth Annual Congress of the Jewish Medical Association

The thirteenth annual congress of the Jewish Medical Association took place in Jerusalem on Sept. 14-16, 1943. In its opening session Dr. Sherman, president of the central committee of the association, reminded the members of the various activities undertaken by the association in order to promote the development of medical science, including the arrangement of scientific meetings. He announced that the meeting would again take place in Jerusalem in 1944, exactly thirty years after the first congress in the same town, and that it would deal mainly with the same subject as the first one—trachoma. Dr. M. Rachmilewitz, chairman of the congress, declared that Palestine had now become a haven for many famous doctors from central European countries, who brought with them a great medical tradition. At present the country was experiencing a shortage of doctors, he said, and there was no certainty that there would be new arrivals from Europe. He emphasized the need to hasten the establishment of the faculty of medicine of the Hebrew University in order to afford medical training for the youth of the country.

The scientific program of the congress was divided into two parts, the bigger part being devoted to typhoid and the rest to various other subjects. Typhoid was discussed as a public health problem (Professor Kligler), from a statistical point of view (Prof. R. Baki), especially with regard to its frequency and special problems in Palestine. Fifteen lectures dealt with epidemiologic, laboratory diagnostic and clinical aspects of the disease. A special meeting was devoted to therapeutic problems of the disease, treatments with mandelic acid (Dr. J. Kleeberg), sulfapyridine (Drs. M. Rachmilewitz and K. Braun) and autohemotherapy (Dr. E. Rabinovitz) being discussed.

The last day of the congress was devoted to fourteen papers covering various subjects including surgery, gynecology, serology, chemotherapy, parasitology and different aspects of internal medicine.

The Physical Development of the Youth Aliyah

Reviewing the physical development of 7,000 adolescents brought to this country from the most varied parts of Europe during the years 1933-1941, Dr. S. Spiro, medical adviser of the Youth Aliyah in Palestine, recently published some interesting data. A great number of the children, prior to their emigration from Germany, had already been examined by Dr. Spiro, then medical adviser of the Palestine office in Berlin. During the past few years reexaminations were made either by himself or under his supervision.

Jewish adolescents who were to be transplanted from other countries to Palestine were selected—at least before the war—particularly with regard to physical fitness, as it was intended to introduce them into agricultural work. However, not only physical but also mental health had to be taken into consideration in these youngsters, who had scarcely outgrown childhood or were at the age of puberty, as the deep changes imposed on them by the new environment were no negligible factor.

The inquiry, carried out at twenty different places in Palestine, disclosed that the average age of the children was between 17 and 18½ years, both boys and girls. The average height of the boys was 168 cm., with a weight of 60 Kg. on an average, while of the girls it was 155 cm., with a weight of 60.5 Kg., the girls thus being comparatively short in build. This is particularly evident if we compare the data with those recorded by Spiro for German schools (Stuttgart): Of 17-18 year old boys the average height was 161-164 cm., with an average weight of 56-59 Kg., and of girls the height was 160-169 cm., with an average weight of 59 Kg.

While the height of Jewish boys thus differs but slightly from that of German boys, and their average weight is even higher, the Jewish girls are considerably smaller than the German girls, with a comparatively higher average weight. These divergencies must at least to some extent be attributed to life habits and in part to constitutional factors (such as the tendency to obesity in Jewish girls).

No essential difference was found between the adolescent living in communal settlements and those living with private settlers, between the mountains and the plain, between places with high living allowances (daily outlays for food) and those with a moderate standard.

The diseases recorded in this group of children were exactly the same as those occurring in the rest of the population of this country. Special attention was given to mental disturbances, and it was found that among 7,000 adolescents under supervision there were 19 cases of schizophrenia (10 girls and 9 boys) and 9 of epilepsy. Of 40 deaths, 22 were due to disease and 19 to accidents.

In conclusion, Spiro points out that the physical as well as the mental development of Jewish youths transplanted to Palestine by the Youth Aliyah presents an extraordinarily favorable picture. Developmental data of Jewish boys compare favorably with those of German boys of the same age and are often even superior.

Pelger-Huet's Nuclear Anomaly

Dr. L. Nelken described in the *Harefuah* (**26,** No. 5, 1944) the first cases of Pelger's nuclear anomaly of the leukocytes, found in a Jewish family in Palestine. Six members of the same family in three generations (5 females, 1 male) showed the anomaly. In the first case, suspicion of an aleukemic form of leukemia arose in connection with splenomegaly, till Naegeli diagnosed the anomaly from blood smears sent to Zurich; the second patient was forbidden to work for two months after a slight typhus exanthematicus infection, because the strange blood picture made the physician suspect a persistent infectious process; in the third case an obstinate staphyloderma caused an examination of the blood to be made, and in this way the anomaly was discovered. The practical value of recognizing the harmless anomaly, so that serious mistakes in diagnosis and prognosis may be avoided, is stressed.

Marriages

HENRY RIVES COLEMAN CHALMERS, Bethesda, Md., to Miss Mary Elizabeth Anne Yates in Winnsboro, S. C., May 2.

JOHN ROBERTSON PAUL JR., Charleston, S. C., to Miss Carolyn Sue Hadaway of La Grange, Ga., April 12.

IAN MACFARLANE CHESSER, Chicago, to Miss Lucille J. Edminster of Wyanet, Ill., in Atlanta, Ga., April 22.

OSCAR ALBERTUS ALEXANDER, Darlington, S. C., to Miss Odessa Snowden in Hemingway, April 29.

JAMES THOMAS STOVALL, Jefferson, Ga., to Miss Julia Isabelle Cox of Clarkton, N. C., April 20.

HERBERT X. SPIEGEL, McKeesport, Pa., to DR. NATALIE SHAINESS of New York, April 23.

Deaths

William Simpson Elkin ✠ Atlanta, Ga.; University of Pennsylvania Department of Medicine, Philadelphia, 1882; joined Southern Medical College as demonstrator of anatomy in 1884 and subsequently held various faculty positions in operative surgery, gynecology and obstetrics, pharmacology and as dean through its development to the Emory University School of Medicine, retiring in 1925 with the title of dean emeritus and emeritus professor of obstetrics and gynecology; a charter member and president in 1884 and 1893 of the Fulton County Medical Society; member of the Southern Surgical Association; fellow of the American College of Surgeons; served as consulting gynecologist at the Grady Hospital and visiting gynecologist at the Wesley Memorial Hospital; formerly chief surgeon for the Atlanta, Birmingham and Atlantic Railway, local surgeon for the Louisville and Nashville Railroad and division surgeon for the Nashville, Chattanooga and St. Louis Railway; served as a member of the Selective Service Board of the Eighth and Ninth wards, Atlanta District, during World War I; a trustee of the Georgia Insane Asylum and the Carnegie Library; in 1932 his wife presented his portrait to Emory University; received the degree of doctor of laws from Emory University in 1925 and Centre College, Danville, Ky., in 1929; on the visiting staff in gynecology, Emory University Hospital, where he died, April 24, aged 85, of uremia.

William Turnor Wootton ✠ Hot Springs National Park, Ark.; University of Maryland School of Medicine, Baltimore, 1899; member of the House of Delegates of the American Medical Association in 1917, 1918 and 1924; past president of the Garland County Medical Society, Hot Springs Academy of Medicine, Medical Association of the Southwest and the Arkansas Medical Society; president and formerly vice president of the Southern Medical Association; member of the U. S. Medical Examining Board of Hot Springs from 1904 to 1908; veteran of the Spanish-American War and the Philippine Insurrection; an original member of the Military Order of the Carabao; member of the medical examining reference board during World War I; member of the executive commission of the U. S. P. H. S. clinic from 1912 to 1935 and member of the clinical staff of the Levi Memorial Hospital from 1935 to 1938; superintendent of the public health service venereal disease hospital in 1936; attending physician, St. Joseph's Hospital, from 1903 to 1938 and lecturer at the Nurses Training School from 1904 to 1916; served as assistant physician at Maryland State Hospital, Catonsville; died in St. Luke's Hospital, St. Louis, May 2, aged 66, of coronary occlusion.

James Conner Attix, Philadelphia; Medico-Chirurgical College of Philadelphia, 1904; also a dentist and a pharmacist; professor of chemistry and toxicology at the Temple University School of Medicine from 1904 to 1935, when he became emeritus professor of toxicology; member of the Medical Society of the State of Pennsylvania, American Medical Association, Philadelphia Roentgen Ray Society and the Philadelphia Clinical Society; x-ray and radio therapeutist, Samaritan and Garretson hospitals, from 1904 to 1914; for many years chemist, pathologist and bacteriologist at the National Stomach Hospital; served as chemist at the Temple University Hospital; author of "Handbook of Chemistry for Students of Medicine, Pharmacy and Dentistry," published in 1909; invented the Attix sphygmomanometer; died in the Morrell Memorial Hospital, Lakeland, Fla., April 20, aged 74, of bronchopneumonia.

Millen Alexander Nickle ✠ Clearwater, Fla.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1907; F.R.C.S., Edinburgh, 1918; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past president of the Pinellas County Medical Society; captain, medical corps, Canadian Expeditionary Forces, during World War I; member of the staff of the Morton F. Plant Hospital, Clearwater; served as examiner for the Florida State Welfare Board; died March 6, aged 63, of coronary thrombosis.

Frederick Lincoln Abbott, Quincy, Mass.; College of Physicians and Surgeons, Boston, 1888; died in Medfield recently, aged 78, of general arteriosclerosis.

William Sherwood Burcher, Beallsville, Ohio; Starling Medical College, Columbus, 1895; served as mayor of Beallsville, president of the board of education and postmaster; died February 11, aged 72, of heart disease.

Wilton Andrews Day ✠ Delta, Colo.; Northwestern University Medical School, Chicago, 1902; past president of the Delta County Medical Society; on the staff of the Western Slope Memorial Hospital; died recently, aged 64, of coronary thrombosis.

Fannie Collins Hutchins ✠ Cleveland; University of Southern California School of Medicine, Los Angeles, 1893; died in the University Hospitals March 13, aged 78, of lobar pneumonia.

Charles E. Jewett, Worthington, Ohio; Ohio Medical University, Columbus, 1896; died February 23, aged 76, of cerebral hemorrhage.

Frederick W. Jones, Girard, Kan.; Barnes Medical College, St. Louis, 1898; member of the Kansas Medical Society; died February 21, aged 72, of heart disease and pneumonia.

Meyer Lippman, Brooklyn; University and Bellevue Hospital Medical College, New York, 1908; member of the Medical Society of the State of New York; associate pediatrician at the Beth-El Hospital; died March 9, aged 59, of coronary thrombosis.

William Louis, Richmond Hill, N. Y.; Eclectic Medical College of the City of New York, 1896; member of the staff of the Prospect Heights Hospital, Brooklyn; died in the Mary Immaculate Hospital, Jamaica, March 29, aged 76, of heart disease.

James Patrick McMurphy, Atmore, Ala.; Medical College of Alabama, Mobile, 1906; member of the Medical Association of the State of Alabama; died March 14, aged 63, of coronary thrombosis.

Robert Milligan, Pittsburgh; Jefferson Medical College of Philadelphia, 1896; member of the Medical Society of the State of Pennsylvania; died recently, aged 75, of cirrhosis of the liver.

William Lowry Milner ✠ Union Star, Ky.; University of Louisville Medical Department, 1894; also a pharmacist; died March 2, aged 73, of carcinoma of the liver.

John J. Mohrbacher, Newark, N. J.; Eclectic Medical College of the City of New York, 1910; member of the Medical Society of New Jersey; member of the board of education; chairman of draft board number 41; police surgeon; on the staffs of the Irvington General Hospital, Irvington, and St. James and Presbyterian hospitals; died March 23, aged 57, of coronary occlusion.

Lewis Ryan Oatman, Greenwich, N. Y.; Albany Medical College, 1891; member of the Medical Society of the State of New York; past president of the Washington County Medical Society; served as health officer in the town of Easton and as president of the village of Greenwich; an associate member of the staff of the Mary McClellan Hospital, Cambridge, and on the staff of the Samaritan Hospital, Troy; died March 1, aged 76, of arteriosclerosis.

Harris Adair Patterson ✠ Joliet, Ill.; Rush Medical College, Chicago, 1897; past president of the Will-Grundy Counties Medical Society; served as township physician and county physician; on the staffs of the Silver Cross and St. Joseph's hospitals; died March 13, aged 80, of carcinoma of the bladder.

Russell Haywood Quick ✠ Toledo, Ohio; Toledo Medical College, 1897; served as a captain in the medical corps of the U. S. Army during World War I; died February 19, aged 69, of coronary occlusion.

John Henry Raach ✠ Wheaton, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1905; past president of the Du Page County Medical Society; formerly city physician of Wheaton; a director of the Gary-Wheaton Bank; on the staff and trustee of the Elmhurst Community Hospital, Elmhurst, where he died March 13, aged 68, of pulmonary embolism.

Andrew Ludwig Reusing, Akron, Ohio; Cleveland Homeopathic Medical College, 1898; died February 23, aged 72, of heart disease.

Benjamin N. Searcy, Rising Sun, Ind.; Illinois Medical College, Chicago, 1898; died in the Christ Hospital, Cincinnati, March 6, aged 66, of cerebral hemorrhage.

Williams Spicer, Goldsboro, N. C.; Bellevue Hospital Medical College, New York, 1898; at one time owner of Spicer's Sanatorium; on the staff of Goldsboro Hospital; died April 20, aged 66, of tuberculosis.

Marcus Hardin Sutherland, Buechel, Ky.; Kentucky School of Medicine, Louisville, 1897; died February 23, aged 86.

Almer N. Tomlin, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; member of the Medical Society of the State of Pennsylvania; died recently, aged 82, of heart disease and asthma.

John Hester Walton, McAllen, Texas; Kentucky School of Medicine, Louisville, 1893; died recently, aged 71, of recurring cerebral hemorrhage.

Correspondence

CATHARTICS PREVIOUS TO ROENTGEN EXAMINATION

To the Editor:—Is it not time to protest against the practice of roentgenologists prescribing strong cathartics preceding an examination of the bowel? In this neighborhood it is apparently the custom to order 3 teaspoons of compound senna (licorice) powder or an ounce of castor oil.

Is it any wonder that a large number of the patients show a picture of irritable or spastic colon? In 2 patients who showed violently active colon and spasms, I have had the barium enema repeated two and three days later and found the colon quiescent and not even suggestive of spastic colon. A number of the better roentgenologists have told me that they are no longer committing themselves to a diagnosis of spastic colon, as it is too common a finding.

But more important is the danger when powerful cathartics are prescribed for patients whose condition is unknown, and without any history being taken. One patient of mine, three months pregnant, was ordered castor oil, but fortunately she called me up about it. Do not the roentgenologists know that castor oil is an abortifacient?

A number of patients with ulcerative colitis and bacillary dysentery have been given compound senna powder, which started a violent and persistent diarrhea. In addition to giving the cathartic, one roentgenologist sent several patients for a colon irrigation as a preliminary to the examination.

In making appointments we always indicate the diagnosis, but in spite of this the routine order for a cathartic is given the patient unless we protest with vigor.

WALTER A. BASTEDO, M.D., New York.

TUMORS OF THE FOOT

To the Editor:—Dr. George Kulchar in an article on "Benign and Malignant Tumors of the Foot" appearing in THE JOURNAL, March 18, writes that "many angiomas involute spontaneously, usually over a period of years. Treatment if feasible should, however, be begun as soon as the tumor is discovered." He further writes that "the simple and the cavernous angiomas are easily treated with x-rays or radium, given usually in small and well spaced doses, or by the injection of sclerosing substances. A lesion not responding to these measures may be surgically excised and, if necessary, the defect repaired by a skin graft. Small lesions may be destroyed with solidified carbon dioxide or by electrodesiccation."

Certainly Dr. Kulchar considers the treatment of these simple and cavernous angiomas in the orthodox accepted manner. However, these orthodox ways of treatment should be abandoned entirely. The simple (strawberry) angiomas and the cavernous angiomas have a natural history with which the average physician is unfamiliar. They are present at birth or appear shortly thereafter, grow quite rapidly for a variable time, attain their maximum growth before the age of 1 year, and completely regress before the sixth year of life. No treatment is necessary. The only thing required is patience. The use of x-rays and of radium in the treatment of these benign self-limited lesions should be abandoned entirely, for it introduces the hazards of causing cataracts, disturbances of epiphysial growth, hemiatrophy of the face from disturbances of growth of the facial bones, and of atrophy of the skin. The unnecessary expense of treatment is not to be overlooked.

I do agree with Dr. Kulchar that there is no satisfactory method of treating the superficial nevus flammeus (port wine stain).

C. RUSSELL ANDERSON, M.D.,
1930 Wilshire Boulevard,
Los Angeles 5.

"PRONE" AND "SUPINE"

To the Editor:—It is surprising the number of physicians and even qualified medical authors who confuse the terms "prone" and "supine." Recently I heard an address by an eminent professor of medicine who said that he catheterized patients in the "prone" position. One of the leading books on treatment, speaking of the heart, says that when a patient suffering heart symptoms is given hypodermic medication he should be in the "prone" position. A recent article in THE JOURNAL makes the same error, which the author corrected in later correspondence. In the dictionary prone is defined as "lying flat with the face downward" and supine as "lying on the back."

EDWIN H. SHEPARD, M.D., Syracuse, N. Y.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the Examining Boards in Specialties were published in THE JOURNAL, May 20, page 229.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Oct. 24-26. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, September 5. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARKANSAS:* *Eclectic.* Little Rock, June 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: San Francisco, June 27-29 Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

CONNECTICUT:* *Written.* New Haven, July 11-12. *Endorsement.* New Haven, July 25. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, July 11-12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, Oct. 10-12. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA:* Jacksonville, June 26-27. Sec., Dr. W. M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 10-13. Sec., Dr. J. A. Morgan, 55 Young Bldg., Honolulu.

IDAHO: Boise, July 11. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

IOWA:* Iowa City, Sept. 25-27. Dir. Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: November. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, Sept. 11-12. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville.

MARYLAND: *Medical.* Baltimore, June 13-16. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 20-21. Sec. Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 11-14. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MICHIGAN:* Ann Arbor, July. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA:* Minneapolis, June 20-22 and Aug. 29-31. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: Jackson, May 29-30. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, August. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York City and Syracuse, June 26-29. Sec., Dr. R. R. Hannon, Education Bldg., Albany.

NORTH CAROLINA: Raleigh, September. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement.* Columbus, July 4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA:* Oklahoma City, Sept. 16. Sec., Dr. J. D. Osborn, Jr., Frederick.

OREGON:* Portland. July 26-27. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Harrisburg, July 11-15. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 358 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 26-28. Sec., Dr. N. B. Heyward, 1329 Blandena St., Columbia.

TEXAS: Galveston, June 26-28. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas.

VERMONT: Burlington, Sept. 12-14. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Sept. 19-22. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WISCONSIN: * Milwaukee, June 27-29. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 5-6. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

COLORADO: Denver, June 7-8. Sec., Dr. E. B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: June 10. Address State Board of Healing Arts, 250 Church St., New Haven 10.

FLORIDA: Gainesville, June 8. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, July 11. Dir., Division of Licensure and Registration. Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MINNESOTA: June 6-7. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

NEW MEXICO: Santa Fe, June 12. Sec., Miss Marian M. Rhea, State Capitol Bldg., Santa Fe.

OKLAHOMA: Oklahoma City, July 3. Sec., Dr. J. D. Osborn Jr., Frederick.

OREGON: Corvallis, July 8. Final date for filing application is June 21. Sec., Board of Higher Education, Mr. C. D. Byrne, Eugene.

SOUTH DAKOTA: Vermillion, June 4-5. Sec., Dr. G. M. Evans, Yankton.

TENNESSEE: Nashville and Memphis, June 23-24. Sec., Dr. O. W. Hyman, Memphis.

WISCONSIN: Milwaukee, June 3. Sec., Prof. R. N. Bauer, 152 W. Wisconsin Ave., Milwaukee.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Alleged Improper Treatment of Cirrhosis of the Liver and Nephritis by Chiropractor.—Bruce Deacon submitted to chiropractic treatments from August 1940 to Oct. 23, 1940 from the defendant chiropractor, the treatments from October 2 on being given at the patient's home because of his condition. The chiropractor diagnosed the patient's ailment as cirrhosis of the liver and nephritis, accompanied by "swollen ankles, a labored heart, shortness of breath, high blood pressure, nausea, headaches and ascites." On October 23 Dr. Carlson, "an M.D. 'took the case over'" and had the patient removed to a hospital, where he died December 9. A postmortem disclosed "an early cardiac type of cirrhosis of the liver. And the immediate cause of death was given as 'myocardial hypertrophy with right auricular mural thrombosis.' The nephritis was secondary to the cirrhosis as the cause of heart failure and the esophageal hemorrhage." Subsequently the patient's widow sued the chiropractor, alleging that the chiropractor improperly treated the patient and that his death was hastened thereby. The trial judge, who heard the case without a jury, entered a judgment in favor of the chiropractor, and the widow appealed to the Supreme Court of Michigan.

The sole question to be determined by the Supreme Court was whether or not the plaintiff had established by a preponderance of the evidence the fact that the chiropractor had been negligent and that his negligence had contributed to the death of the patient. There was irreconcilable conflict, said the Supreme Court, between the testimony offered in behalf of the plaintiff and that offered in behalf of the chiropractor. On behalf of the plaintiff there was testimony given by one physician tending to sustain the contention that the chiropractor in treating the patient was guilty of such negligence or misconduct as would entitle the plaintiff to recover damages. On the other hand, however, the attending physician, Dr. Carlson, testified that nothing was done by the chiropractor in the course of his treatment that was detrimental to the welfare of the patient or in consequence of which it could be said that the chiropractor failed in the performance of his professional duty. The plaintiff apparently contended before the trial court that the chiropractor failed in his duty to recommend that the patient be removed to a hospital, especially after it became apparent that the chiropractor could not successfully treat the patient. The trial court, however, in an opinion it rendered overruling a motion for a new trial, pointed out specifically that Dr. Carlson, the attending physician, had testified that both the patient and the widow, the present plaintiff, had told him, when he first assumed charge of the case, that they were sorry they did not come into the hospital before as the chiropractor had advised them to do. The trial court, after carefully weighing the testimony, came to the conclusion that the widow had not sustained the burden of proof which was essential to her right of recovery, and the Supreme Court agreed with the trial court. The judgment in favor of the chiropractor was accordingly affirmed.—*Deacon v. Jaerling, 13 N. W. (2d) 831 (Mich., 1944).*

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 12-16. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Tuberculosis Physicians, Chicago, June 13. Dr. Oscar S. Levin, P. O. Box 7011, Denver, Colo., Secretary.

American Association for the Surgery of Trauma, Chicago, June 9-10. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary.

American Association of Genito-Urinary Surgeons, Stockbridge, Mass., June 8-10. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland, Secretary.

American Broncho-Esophagological Association, New York, June 6. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago, Secretary.

American College of Allergists, Chicago, June 10-11. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Chicago, June 10-12. Dr. Paul H. Holinger, 500 N. Dearborn St., Chicago, Secretary.

American Diabetes Association, Chicago, June 11. Dr. Cecil Striker, 630 Vine St., Cincinnati 2, Secretary.

American Federation for Clinical Research, Chicago, June 12-13. Dr. Thomas M. Durant, 3401 N. Broad St., Philadelphia 40, Secretary.

American Gastro-Enterological Association, Chicago, June 12-13. Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Gynecological Society, Hershey, Penna., June 19-21. Dr. Howard C. Taylor Jr., 842 Park Ave., New York 21, Secretary.

American Laryngological Association, New York, June 7-8. Dr. Arthur W. Proetz, 3720 Washington Blvd., St. Louis, 8, Secretary.

American Laryngological, Rhinological and Otological Society, New York, June 9-10. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, Chicago, June 10-11. Dr. Carroll L. Birch, 2045 Sedgwick St., Chicago, Secretary.

American Ophthalmological Society, Hot Springs, Va., May 29-31. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Orthopedic Association, Hot Springs, June 1-3. Dr. Charles W. Peabody, 474 Fisher Bldg., Detroit, Secretary.

American Physicians' Art Association, Chicago, June 12-16. Dr. F. H. Redewill, 536 Flood Bldg., San Francisco, Secretary.

American Proctologic Society, Chicago, June 11-13. Dr. W. H. Daniel, 1930 Wilshire Blvd., Los Angeles 5, Secretary.

American Society for Research in Psychosomatic Problems, Chicago, June 10-11. Dr. Edwin G. Zabriskie, 115 East 61st St., New York, Secretary.

American Therapeutic Society, Chicago, June 10. Dr. Oscar B. Hunter, 1835 I St. N.W., Washington 6, D. C., Secretary.

American Urological Association, St. Louis, June 19-22. Dr. Thomas D. Moore, 899 Madison Ave., Memphis, 3, Tenn., Secretary.

Association for Research in Ophthalmology, Chicago, June 13. Dr. B. F. Payne, School of Aviation Medicine, Randolph Field, Texas, Secretary.

Association for the Study of Internal Secretions, Chicago, June 12-13. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Secretary.

Maine Medical Association, Rockland, June 25-27. Dr. Frederick R. Carter, 142 High Street, Portland 3, Secretary.

Society for Investigative Dermatology, Chicago, June 13. Dr. S. W. Becker, 55 E. Washington St., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

207:281-420 (March) 1944

*Diagnostic Value of Pancreatic Function Tests in 47 Surgically Treated Cases. L. Bauman and A. O. Whipple, with technical assistance of Miss Edith Bratti and Miss Paullynn Stines.—p. 281.

Effects on Experimental Tuberculosis of 4,4'-Diaminodiphenylsulfone. W. H. Feldman, H. C. Hinshaw and H. E. Moses.—p. 290

*Experimental Human Influenza. A. P. Krueger and others.—p. 306.

Note Recommending Use of Dried Plasma Obtained from Fresh Cadaver Blood. L. A. Erf.—p. 314.

Electrocardiographic Patterns in Cardiovascular Syphilis. S. L. Cole and Anne Bohning.—p. 317.

Pathologic Changes in Sulfadiazine Intoxication. E. F. Geever.—p. 331.

Carcinoma of Nasopharynx. C. M. Thompson and E. L. Grimes. —p. 342.

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Hepatorenal Failure in Waterhouse-Friderichsen Syndrome: Clinicopathologic Observations in 2 Cases with Prolonged Survival Periods. B. A. Marangoni and V. C. D'Agati.—p. 385.

Obstructive Lesions of Main Renal Artery in Relation to Hypertension. C. L. Yuile.—p. 394.

Pancreatic Function Tests.—Bauman and Whipple found that mecholyl injection induces secretion of a relatively concentrated pancreatic juice which is well adapted for ferment determination. Separate aspiration of the stomach is necessary to avoid acidification, which injures the pancreatic ferments. A tube with two lumens is used for this purpose. The authors determined the reaction and ferment concentration of the pancreatic juice of 150 patients with various diseases and with verified pancreatic disease. Functional disturbances of the external secretion of the pancreas may occur without demonstrable microscopic changes in the organ. Painless obstructive jaundice with normal pancreatic ferments favors the diagnosis of carcinoma of the bile duct. In tumor of the ampulla normal ferments may be obtained if the pancreatic duct enters the duodenum separately or if there is an accessory duct of Santorini. Painless obstructive jaundice with diminished or absent ferments favors the diagnosis of carcinoma of the pancreas.

Experimental Human Influenza.—Krueger and his collaborators subjected 24 human volunteers to a fine spray of F-99 egg virus from one to twelve minutes. The men manifested no clinical symptoms of influenza. The failure to produce clinically recognizable infection with the F-99 strain of virus, even with doses several times that employed by the Henles and Stokes, may possibly be due to the extra egg passages through which this virus was carried before inoculation of the test subjects. It is not easily understandable why a virus infective for man after having been passed sixteen times in experimental animals and three times in eggs should, after but four more egg passages, be so innocuous. It may be that virulence alterations of influenza viruses take place in sudden steps rather than by gradual decline. A few passages from one human being to another might bring about the reverse transition, thereby fulfilling the primary requirement for development of a severe epidemic. The possibility of such an occurrence makes one hesitate to advocate immunization of human beings by means of attenuated virus administered by inhalation. Five A type strains of virus were isolated from 5 suspected cases of influenza by means of direct egg inoculation. Methods using hamsters and mice for direct isolation proved negative on the same samples. One of these strains was used for infection of a second series of volunteers. Of 17 subjects exposed from six to twelve minutes 4 exhibited definite symptoms of influenza and 6 were highly suggestive, while the remainder showed no significant reactions. The blood counts revealed no changes. The 4 definite cases all showed low initial antibody titers. All but 1 of the 17 test subjects showed some antibody rise as a result of the inhalation. The exception had the highest initial antibody titer of the group.

Drug Fever Accompanying Second Courses of Sulfonamides.—Dowling and Lepper analyzed data on patients who had received more than one course of the sulfonamide drugs and who did not develop fever during the first course. Among 144 patients who received a second course of sulfathiazole, sulfadiazine or sulfapyridine, after a varying interval of time had intervened since the first course of the same sulfonamide, 16 (11.1 per cent) developed drug fever. Among 169 patients who received a second course of sulfathiazole, sulfadiazine or sulfapyridine following a first course of another sulfonamide 6 (3.6 per cent) developed drug fever. Among 737 patients who were observed during a single course of therapy with sulfathiazole, sulfadiazine or sulfapyridine 37 (5 per cent) developed febrile reactions. Such reactions were more frequent following a second course of sulfathiazole, as well as during a single course of sulfathiazole, than was the case with sulfadiazine or sulfapyridine. Three to six courses of the same sulfonamide were given to 12 patients, none of whom developed febrile reactions. The authors conclude that, when a second course of a sulfonamide must be given to a patient, regardless of the interval following the first course, another sulfonamide drug should be given.

American Journal of Physiology, Baltimore

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Adrenal Cortical Compounds and 1-Ascorbic Acid on Secreting Kidney Tubules in Tissue Culture. R. Chambers and Gladys Cameron. —p. 138.

*Excretion of Sulfanilamide and Acetylsulfanilamide by Human Kidney. T. A. Loomis, G. F. Koepf and R. S. Hubbard.—p. 158.

Renal Excretion of Sulfanilamide.—Loomis, Koepf and Hubbard made simultaneous clearance tests of sulfanilamide, acetylsulfanilamide and inulin on a series of unselected human subjects. The mean clearance of sulfanilamide was found to be

0.45 time as great as the mean clearance of inulin in 82 determinations. This result was interpreted as meaning that sulfanilamide is excreted by the human kidney by glomerular filtration plus tubular reabsorption. The mean clearance of acetylsulfanilamide was found to be almost identical with that of inulin in 95 determinations. However, in individual cases the clearances of these two compounds were not always identical but the degree of variations of these clearances were nearly the same. The clearances of sulfanilamide, acetylsulfanilamide and inulin were found to be independent of the urine flow.

American Journal of Public Health, New York

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Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

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Aero-Otitis Media: Roentgenologic Study. J. C. Larkin.—p. 178.
*Effect of Roentgen Rays on Joint Effusions in Certain Nonspecific Articular Lesions in Humans, and on Normal Joints of Dogs: Preliminary Report. T. Horwitz and M. A. Dillman.—p. 186.
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Cleidocranial Dysostosis. C. G. Lyons and J. G. Sawyer.—p. 215.
*Regression of Bone Metastases from Breast Cancer After Ovarian Sterilization. M. Ritvo and O. S. Peterson Jr.—p. 220.
Roentgen Irradiation in Polycythemia Vera by Multiple Small Doses to Large Areas of Body. L. L. Robbins.—p. 230.

Effect of Roentgen Rays on Joint Effusions.—Horwitz and Dillman used roentgen therapy to control effusions in nonspecific synovial lesions involving the knee joint. One knee joint was treated in 3 subjects and both in 3 others. No other joints than the knees were involved in these cases. The etiology could not be definitely ascertained, the onset being gradual and without apparent cause in all of the subjects, with the possible exception of a young patient who had suffered an attack of rheumatic fever prior to the onset of her knee involvement. Diagnosis in 2 cases with recurrent knee effusion was "intermittent hydrarthrosis" and in the 4 cases with continuous effusions was "chronic nonspecific synovitis with effusion." In all cases, previous treatment with repeated aspirations, compression bandages, external fixation and intensive physical therapy and, in 2 cases, nonspecific protein therapy had failed to alter the clinical picture. Roentgen therapy was beneficial in the control of joint effusion and its attendant discomfort in human beings. No immediate and, as yet, no remote deleterious effects have been observed in these cases. The effusion was eliminated in 8 knee joints in 5 patients, and no change was effected on the synovial effusion of the knee joint in the sixth case following an incomplete course of roentgen therapy. Residual asymptomatic synovial thickening has persisted in 3 knee joints of 2 patients and painful synovial thickening in the knee joint of 1 patient. There is, therefore, nothing to suggest that roentgen therapy has served or will serve to affect favorably the progress and ultimate course of the underlying pathologic processes in these cases. The more vulnerable articulations of the extremities of 6 normal adult dogs treated with much larger doses than have been utilized and found effectual in the human subjects have shown no immediate and, thus far, no remote untoward effects.

Regression of Bone Metastases from Breast Cancer After Ovarian Sterilization.—According to Ritvo and Peterson an extensive literature has accumulated stressing the importance of ovarian sterilization in the treatment of metastatic lesions from cancer of the breast. Local recurrences and deep visceral metastases generally seem to show little or no response after radiation treatment directed to the ovaries. The most satisfactory results are obtained in patients with osseous metastases. Osseous metastases from cancer of the breast may regress or disappear completely after ovarian sterilization. The absence or withdrawal of the ovarian hormone is the important factor in producing the results. In addition to the beneficial effects observed in the bone lesions there may also occur relief of pain, general improvement in the physical and mental status, and prolongation of the patient's period of usefulness. The regression of the osseous metastases prevents pathologic fractures with their resultant deformity and disability. The question as to whether this therapy results in appreciable prolongation of life cannot be definitely answered in the affirmative at present. Routine roentgen sterilization of all patients with cancer of the breast is not advocated, the treatment being recommended when osseous metastases have been demonstrated by roentgen examinations. About one third or more of the patients treated may be expected to show improvement after ovarian sterilization.

American Journal of Surgery, New York

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Cancer of Lip: Study of 56 Five Year Cases. C. A. Whitcomb.—p. 304.
Diagnostic Value of Blood Studies in Malignancy of Gastrointestinal Tract. H. L. Bolen.—p. 316.
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Combination of Nail and Screw for Fixation of Fractures of Neck of Femur. H. A. Johnston.—p. 329.
*Parenteral Fluid Administration Beneath Fascia Lata. R. K. Finley, J. M. Shaffer and A. Altenberg.—p. 337.
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Operation for Pilonidal Sinuses. R. W. Hipsley.—p. 357.
Retroperitoneal Mucocele of Appendix: Case Report. W. H. Myers and Ruth F. Rominger.—p. 362.
Lateral Osteotomy: Anatomic Considerations. C. K. Gale.—p. 368.
Cotton Suture Material: Importance of Surgical Principles. B. Word and C. E. Brock.—p. 371.
Pain in Shoulder and Upper Extremity Due to Scalenus Anticus Syndrome. B. Judovich, W. Bates and W. Drayton Jr.—p. 377.

Parenteral Fluid Administration Beneath the Fascia Lata.—Finley and his associates practiced subfascia lata infusions of 1,000 cc. of isotonic solution of sodium chloride or of 5 per cent dextrose solutions in 261 cases, the average time required for the delivery of the solution being fifty-six minutes. In 33 patients the average time for absorption of the same amount of fluid by hypodermoclysis was 167 minutes. The solution appears to be absorbed rapidly, as shown by the excretion of phenolsulfonphthalein dye in the urine. This absorption probably takes place in the extensive loose areolar space and capillary and lymphatic bed just beneath the fascia lata. There is more rapid absorption in elderly patients, probably because of more lax structures. The rate of absorption is not greatly influenced by the state of dehydration. Minimal swelling and pain is associated with this method. Because of the decreased discomfort, increased rate of absorption and unquestionable safety of the method, fluid and electrolyte needs can be replenished several times daily and intravenous solutions can be restricted to transfusions and hypertonic fluids. The surgical patient may be moved in bed frequently, without long periods of immobilization. The technic of insertion on the lateral thigh is simple and, because of the rapidity of absorption, the entire procedure can be left safely in the hands of the nursing staff, with elimination of a large amount of nursing time and care.

American Review of Tuberculosis, New York

49:203-288 (March) 1944

Control, Duplication and Standardization of Radiographic Chest Technic. W. H. Weidman and J. Kieffer.—p. 203.

Sanatorium, Superintendent and War. H. S. Willis.—p. 227.

Mars and Mortality: Influence of War on Death Rates from Various Causes in Different Populations. E. Bogen.—p. 231.

*Intrabronchial Spread Following Thoracoplasty. M. Weinstein and S. Tyau.—p. 238.

Ether Anesthesia in Pulmonary Tuberculosis. J. D. Murphy.—p. 251.

Effect of Pulmonary Tuberculosis on Weight of Heart. G. K. Higgins. —p. 255.

Miliary Densities Associated with Mitral Stenosis. A. Hurst, S. Bassin and Ida Levine.—p. 276.

Intrabronchial Spread Following Thoracoplasty.—Weinstein and Tyau state that among 198 thoracoplasties there were nineteen postoperative spreads in 14 patients, or an operative incidence of approximately 10 per cent. Four deaths occurred from spreads, giving a mortality of 2 per cent for this complication. Negroes developed spreads more than twice as frequently as white patients. Their spreads were more severe, and the 4 fatalities were confined exclusively to colored patients. Tuberculous spreads involved twice as many contralateral lungs as homolateral lungs. Bilateral spreads occurred in only 4 cases. Selective pneumothorax in the controlled contralateral lung for bilateral disease did not prevent the formation of a spread in that lung after thoracoplasty. The greatest number of spreads occurred, first, in the lower third of the lung, second, in the middle third and, third, in the upper third, where the preoperative disease was most predominant. All patients with mild spreads recovered, while those with severe and bilateral spreads accounted for the 4 postoperative fatalities. Patients with extensive disease and much cavitary exudate are more prone to spread after thoracoplasty. Many patients with extensive disease go through thoracoplasty procedures without any postoperative tuberculous spreads. No single or multiple procedures can always prevent spreads. Maintaining the tracheobronchial tree free from much secretion will help considerably. In this way the airways are kept open and the movement of infected tuberculous exudate throughout the respiratory system is lessened.

Anesthesiology, New York

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Deaths in Operating Room. R. M. Waters and N. A. Gillespie.—p. 113.

Anesthesia for Patient in Shock. R. B. Gould.—p. 129.

Continuous Spinal Anesthesia: Its Usefulness and Technic Involved. E. B. Tuohy.—p. 142.

*Value of Cyclopropane in Anesthetic Management of Patients with Recent Severe Hemorrhage. S. G. Hershey and E. A. Rovenstine. —p. 149.

Anesthesia: XII. Studies with Isopropenyl Vinyl Ether (Propethylene Ether) in Man. E. H. Davis and J. C. Krantz Jr.—p. 159.

Changes of Concentration of Hemoglobin During Anesthesia in Man and in Animals. J. W. Pender and J. S. Lundy.—p. 163.

Clinical and Laboratory Observations on Use of Curare During Inhalation Anesthesia. S. C. Cullen.—p. 166.

Atelectasis During Anesthesia. W. H. Cassels and Anita E. Rapoport. —p. 174.

Studies on Paraldehyde: I. Median Lethal Dose, LD_{50}, of Paraldehyde for Guinea Pigs. F. A. Kay, E. B. Carmichael and G. W. Phillips. —p. 182.

Bilateral Nasotracheal Intubation for Closed System Anesthesia. R. A. Gordon.—p. 186.

Cyclopropane Anesthesia for Recent Severe Hemorrhage.—Hershey and Rovenstine report the beneficial effect of cyclopropane on the blood pressure and the pulse rate of patients anesthetized soon after a recent severe hemorrhage. In 4 of their patients hemorrhage was the predominant factor in the circulatory depression. They also report experimental studies on animals supporting the clinical impression that cyclopropane anesthesia, if not profound, is not contraindicated during shock from hemorrhage. An improvement in circulation was regularly noted in animals when the drug was given after hemorrhage. There was an increase in the mean arterial blood pressure and pulse pressure, as well as a slowing of the pulse rate. It is suggested that some of the observed effects from cyclopropane may be caused by a parasympathomimetic action.

Archives of Internal Medicine, Chicago

73:113-198 (Feb.) 1944

Primary Atypical Pneumonia: Report of 125 Cases, with Autopsy Observations in 1 Fatal Case. R. J. Needles and P. D. Gilbert.—p. 113.

Effects of Unilateral Nephrectomy in Treatment of Hypertension: An Evaluation. W. Sensenbach.—p. 123.

*New Aid in Control of Hemorrhage in Severe Damage to Liver: Transfusions of Blood Fortified by Administration of Vitamin K to Donors. R. E. Kinsey.—p. 131.

Fluid Dynamics in Chronic Congestive Heart Failure: Interpretation of Mechanisms Producing Edema, Increased Plasma Volume and Elevated Venous Pressure in Certain Patients with Prolonged Congestive Failure. J. V. Warren and E. A. Stead Jr.—p. 138.

Electrocardiographic Features Associated with Hyperthyroidism. G. Gordan, M. H. Soley and F. L. Chamberlain.—p. 148.

Gastroenterology: Review of Literature from July 1942 to July 1943. C. M. Jones.—p. 154.

New Aid in Hemorrhage Due to Damage of Liver.—Kinsey shows that hypoprothrombinemia produced by destruction of liver tissue is not influenced by vitamin K or bile salts. During the past year 663 cases of intrahepatic jaundice have been observed at the Station Hospital at Camp Blanding. Five of the patients had acute yellow atrophy, with the plasma prothrombin reduced to such an extent that severe spontaneous hemorrhages occurred. These patients were given large doses of vitamin K, without response, and large transfusions of whole blood, with minimal changes in the prothrombin and no effect on the bleeding. After the first of these patients died in spite of treatment with menadione and blood transfusions, it was decided to try transfusions of blood fortified by administration of vitamin K to the donors. The evidence obtained indicates that the method may have definite value in preventing immediate "hemorrhagic death" or in controlling hemorrhage until there has been regeneration of sufficient hepatic tissue for essential functions. The maximum elevation of prothrombin in the blood usually occurred within twenty-four hours, but in the instances in which the liver was still badly damaged there was usually a decline during the second twenty-four hours. A striking feature of 1 case was the regularity with which the bleeding ceased between 120 and 140 minutes after transfusion on all occasions. In 2 other cases fortified transfusions, as well as regular transfusions, had no effect on a minute purpuric rash but controlled hemorrhages in the skin and subcutaneous tissues. Determination of the optimum amount of vitamin K and of the period of time required for its utilization by the donor requires further work; 6 to 10 mg. of menadione given intramuscularly during the twenty-four hours before a transfusion will probably work satisfactorily. The evidence suggests that vitamin K stimulates the formation of prothrombin or of one of its precursors in the blood of the donor in abnormally large amounts, which can be utilized by the recipient.

Archives of Neurology and Psychiatry, Chicago

51:213-304 (March) 1944

Human Pyramidal Tract: IX. Effect of Paralysis Produced by Cerebral Tumors on Axons of Pyramids. A. M. Lassek.—p. 213.

*Pathologic Features of Herpes Zoster: Note on "Geniculate Herpes." D. Denny-Brown, R. D. Adams and P. J. Fitzgerald.—p. 216.

Electronarcosis in Animals and in Man. J. P. Frostig, A. van Harreveld, S. Reznick, D. B. Tyler and C. A. G. Wiersma.—p. 232.

Disintegration and Restoration of Optic Recognition in Visual Agnosia: Analysis of Case. A. Adler.—p. 243.

Psychopharmacologic Study of Schizophrenia and Depressions: Intravenous Administration of Sodium Amytal and Amphetamine Sulfate Separately and in Various Combinations. J. S. Gottlieb and F. E. Coburn.—p. 260.

Site of Origin of Fasciculations in Voluntary Muscle. F. M. Forster and B. J. Alpers.—p. 264.

Tumor of Acoustic Nerve Within Petrous Bone: Operative Removal. L. J. Adelstein and F. M. Anderson.—p. 268.

Pathologic Features of Herpes Zoster.—Denny-Brown and his associates present clinical and pathologic observations on 3 patients with herpes zoster. They stress four histologic appearances which distinguish herpes zoster from other pathologic processes: 1. A ganglionitis characterized by pannecrosis of all or part of the ganglion, with or without hemorrhage and surrounded by intense lymphocytic infiltration. This phenomenon was associated with the eruption of vesicles characteristic of the disease in the corresponding cutaneous segment. 2. A poliomyelitis which closely resembles anterior poliomyelitis but

is distinguished by its unilaterality, segmental localization and greater involvement of the posterior horn, posterior root and dorsal spinal ganglion. 3. A relatively mild, localized leptomeningitis, in which the cellular infiltrate is relatively slight and limited principally to the involved spinal segments and nerve roots. 4. True peripheral mononeuritis seen not only in the nerves distal to the ganglion but in the anterior nerve root both within the meninges and in the portion contiguous to the involved spinal ganglion. These pathologic changes constitute the substratum for the neuralgic pain, the persistent pleocytosis and the local palsies which may attend and follow the zoster infection. The hypothesis of Hunt that the combination of a herpetic eruption in the external auditory meatus and palsy of the facial nerve is due to herpes of the geniculate ganglion has wide acceptance in spite of the absence of pathologic proof. The third case was one of auricular and occipital herpes with palsy of the facial nerve. Here a typical necrotizing ganglionitis (second cervical ganglion) and motor neuritis of the facial nerve without damage to the geniculate ganglion were observed. The phenomena of herpes zoster require more than the ganglionic lesion for their explanation: they depend in part on a poliomyelitis and a motor neuritis. Application of these dedu tions to the syndrome described by Ramsay Hunt allows an explanation of the facial palsy occurring in the course of cranial herpes zoster without implication of the geniculate ganglion. Analysis reveals that the evidence for geniculate ganglionitis in the "Ramsay Hunt syndrome" is invalid. It is possible that some of the various herpes zoster syndromes with palsy of the facial nerve depend on the concurrent involvement of two or more cranial nerves.

Archives of Physical Therapy, Chicago

25:129-192 (March) 1944

Muscle Contraction, Fatigue and Training: Review of Physiologic Literature. K. Harpuder.—p. 135.
Frostbite. C. W. Bankert.—p. 144.
Reduction of Manpower Loss from Gonorrheal Urethritis by Early Application of Fever-Chemotherapy. K. Phillips and Alice B. Mundorff.—p. 150.
*Complications of Therapeutic Hyperpyrexia. H. S. Etter.—p. 154.
Diathermy in Protracted (Unresolved) Pneumonia. E. W. Fowlks.—p. 164.

Complications of Therapeutic Hyperpyrexia.—The use of hyperpyrexia is attended with many actual as well as potential dangers, among others that of hemorrhage. Etter emphasizes the need for administration of oxygen during the fever stage. Extra dextrose may also be needed before the treatment. Despite the widespread use of therapeutic hyperpyrexia with a low mortality rate, the fact should always be remembered that it is a potentially dangerous procedure. When one is in doubt, the patient should be taken out of the cabinet.

Bulletin New York Academy of Medicine, New York

20:135-200 (March) 1944

*Treatment of Lobar Pneumonia and Pneumococcal Empyema with Penicillin. W. S. Tillett, Margaret J. Cambier and J. E. McCormack.—p. 142.
Critical Review of Gastroscopy. E. B. Benedict.—p. 179.
Diagnosis and Treatment of Pneumonia.—p. 190.

Penicillin in Lobar Pneumonia and Pneumococcic Empyema.—Tillett and his associates used penicillin in the treatment of 46 patients with pneumonia. They limited the use of this drug to those who on admission exhibited lobar consolidation and a degree of severity indicating the probable pneumococcic etiology of the infection. Even though therapy was at times instituted before the bacteriologic findings were reported, there were only 3 instances in which the specific cause was undetermined. Penicillin was highly effective in the treatment of pneumococcic pneumonia. Of the 46 patients, 3 died and 39 recovered in a manner indicating the special value of the drug. The response was not clearly defined in 4 patients, 1 of whom probably had primary atypical pneumonia and the other 3 had unrelated underlying pulmonary diseases which prolonged their illness beyond the usual course of pneumonic resolution. Bacteremia, which occurred in 14 of the patients, disappeared in every instance following injections of penicillin. Eight patients with pneumococcic empyema were treated with intrapleural injections of penicillin. In 7 the infection was eliminated without surgical drainage. Six of them recovered completely with only a restricted area of pleural thickening remaining as a permanent alteration. In 1 patient, who had pyopneumothorax on admission, the pyothorax cleared up satisfactorily but the pneumothorax arising from a bronchopleural fistula which was present before treatment was begun has persisted. In another patient, who was insufficiently treated with penicillin, relapse occurred and surgical drainage was instituted. Reexamination at varying periods revealed that, with the exception of the patient with pneumothorax, the others have remained well and free from symptoms. Strains of pneumococci derived from the empyemal pus of patients whose pneumonia had been previously treated with sulfadiazine were found to possess varying degrees of sulfonamide resistance.

Cancer Research, Baltimore

4:145-208 (March) 1944

Metabolic Studies in Patients with Cancer of Gastrointestinal Tract. XIII: Effect of Glycine on Urinary Excretion of Creatine and Creatinine, Especially by Patients with Cancer of Gastrointestinal Tract. J. C. Abels, Claudia W. Kupel, G. T. Pack and C. P. Rhoads.—p. 145.
Metabolism of Pyruvate by Normal and Leukemic White Cells. J. C. Abels, Florence L. Jones, L. F. Craver and C. P. Rhoads.—p. 149.
Carcinogenicity of p-Dimethylaminoazobenzene in Diets Containing Hydrogenated Coconut Oil. J. A. Miller, B. E. Kline, H. P. Rusch and C. A. Baumann.—p. 153.
Observations on Inherited Susceptibility to Spontaneous Mammary Cancer in Mice. J. J. Bittner.—p. 159.
Chromophobe Adenoma-like Lesions of Rat Hypophysis: Frequency of Spontaneous Lesions and Characteristics of Growth of Homologous Intraocular Transplants. J. A. Saxton Jr. and J. B. Graham.—p. 168.
Carcinoma of Adrenal Cortex in Rabbit. W. C. Hueper and C. T. Ichniowski.—p. 176.
Comparative Antifibromatogenic Activity of Progesterone and Related Artificial Steroids. A. Lipschütz, S. Bruzzone and F. Fuenzalida.—p. 179.
Antifibromatogenic Activity of Synthetic Progesterone in Experiments with 17-Caprylic and Dipropionic Esters of Alpha-Estradiol. A. Lipschütz and J. Grismali.—p. 186.
Phenomenon of Local Skin Reactivity to Serratia marcescens (B. Prodigiosus): Immunologic Relationships Between Serratia marcescens Culture Filtrates and Shear Polysaccharide. G. Schwartzman.—p. 191.
Cancer Congress of Guadalajara (Mexico). F. Duran-Reynals.—p. 197.

Delaware State Medical Journal, Wilmington

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Hypothalamus and Human Emotions. A. J. Fleming.—p. 1.

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Radical Perineal Prostatectomy Subsequent to Bilateral Orchectomy. B. S. Vallett.—p. 19.
Immune Serum in Cancer Therapy. L. Levitov.—p. 20.
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Endocrinology, Springfield, Ill.

34:143-214 (March) 1944

Antidiuretic Action of Yohimbine. N. W. Fugo.—p. 143.
Quantitative Aspects of Estrogen Assays. J. M. Curtis, E. Witt and Lila F. Knudsen.—p. 149.
In Vitro Accumulation of Inorganic Iodide by Surviving Thyroid Tissue with Radioactive Iodine as Indicator. H. Schachner, A. L. Franklin and I. L. Chaikoff.—p. 159.
*Effect of Thiouracil and Thiourea on Thyroid Gland of Chick. J. P. Mixner, E. P. Reineke and C. W. Turner.—p. 168.
Micro Method for Separation of 17-Ketosteroids into Alpha and Beta Fractions. Elizabeth G. Frame.—p. 175.
Effects of Adrenalectomy on Activity of Cytochrome Oxidase and Concentration of Cytochrome C in Rats. S. R. Tipton.—p. 181.
Effect of Preventing Acapnia on Adrenal Cortical Hypertrophy Under Conditions of Decreased Barometric Pressure. H. F. Hailman.—p. 187.
Quantitative Assay of Adrenal Cortical Hormones by Muscle-Work Test in Adrenalectomized-Nephrectomized Rat. D. J. Ingle.—p. 191.
Metabolism of Estrone in Normal and Partially Hepatectomized Rats. J. Schiller and G. Pincus.—p. 203.
No Effect on Adenal Hypertrophy of Subdiaphragmatic Vagotomy Under Conditions of Decreased Barometric Pressure. H. F. Hailman.—p. 210.

Effect of Thiouracil and Thiourea on Thyroid of Chicks.—Mixner and his associates found that approximately 0.1 per cent of thiouracil and thiourea in the diet for fourteen days was the optimal dosage for the production of maximal enlargement of the thyroid in 1 to 2 day old White Plymouth Rock chicks. Female White Plymouth Rock chicks exhibited a greater thyroid response than did the males when fed 0.1 per cent of thiouracil or 0.1 per cent of thiourea in the feed for fourteen days. Increasing dosages of thyroxine progressively

decreased the thyroid enlargement produced in White Plymouth Rock chicks by 0.1 per cent of thiouracil in the diet. There was a sex difference in this regard, the females requiring greater amounts of thyroxine to depress the thyroid weights. Nine different breeds of chickens were given 0.1 per cent of thiouracil in drinking water and the thyroid responses noted. The thyroids of the lighter breeds of chickens gave a greater response as compared with the thyroids of the heavier breeds. The authors discuss the application of these experiments in the formulation of a biologic assay for materials having thyroxine-like activity.

Gastroenterology Baltimore

2:85-160 (Feb.) 1944

*Gastritis in Military Service. J. W. Annis.—p. 85.
Effect of Sodium Alkyl Sulfate on Peptic Activity of Gastric Contents and on Healing of Gastric Ulcer in Man. J. B. Kirsner and R. A. Wolff.—p. 93.
Large Intestine: Review of Current Literature. E. E. Wollaeger and J. A. Bargen.—p. 102.
Observations on Specific Vitamins and Atrophic Gastritis. N. Shapiro, L. Schiff, H. S. Bloch, E. S. Garber and Mary J. Hannaher.—p. 121.
Effect of Blacktongue-Producing Diet on Endoscopic Appearance of Gastric Mucosa in Dog. J. A. Layne and J. B. Carey.—p. 133.
Effect of Bile Acids on Biliary Excretion of Cinchophen. J. H. Annegers, F. E. Snapp, A. J. Atkinson and A. C. Ivy.—p. 138.

Gastritis in the Military Service.—Annis states that during a two year period 2,755, or approximately 11 per cent, of the total medical patients were admitted to the gastrointestinal service at Camp Blanding. This figure includes 613 patients with epidemic jaundice following inoculation, who have been excluded in order to give a more correct representation of the true incidence of various disease entities. There remain 2,142 gastrointestinal patients. For this study all cases of gastric ulcer, tumor, trichophytobezoar and anomalies have been eliminated and only 276 with chronic dyspepsia remained. Gastroscopy revealed that 109, or 39.5 per cent, of these had some form of gastritis. Of these, 52 showed hypertrophic changes, 44 superficial changes and 13 atrophic changes. The 109 patients represent roughly 5 per cent of admissions to the gastrointestinal service. This figure is a conservative minimum, since the number of examinations which could be done was limited by the facilities at hand. Ideally all patients with chronic dyspepsia without other organic findings which adequately explain the symptom complex should be subjected to gastroscopy. All patients with moderate or severe changes have been recommended for separation from the service, and those with mild disorders have been reclassified and retained in less strenuous positions. Since dietary control is not possible in the Army, the latter solution has not been as effective as might be anticipated. These men have not made good soldiers, as judged by actual trial at duty following hospital treatment.

Georgia Medical Association Journal, Atlanta

33:1-28 (Jan.) 1944

Symposium on Acute Surgical Problems in Abdomen

Modern Treatment of Perforative Appendicitis. T. C. Davison and A. H. Letton.—p. 1.
Acute Cholecystitis. E. Callaway.—p. 6.
Acute Pancreatitis. J. C. Patterson.—p. 9.
Treatment of Perforated Peptic Ulcers: Report of 36 Cases. M. M. Hagood.—p. 12.
Acute Intestinal Obstruction. C. H. Richardson.—p. 14.

33:29-62 (Feb.) 1944

Symposium on Obstetrics and Gynecology

Rural Obstetrics Associated with Office Delivery. R. Torpin, J. B. Kay and J. T. Persall.—p. 29.
Continuous Caudal Analgesia in Normal and Complicated Labor. P. P. Volpitto, R. A. Woodbury, B. Abreu and R. Torpin.—p. 35.
Tuberculosis of Cervix. J. F. Denton.—p. 37.
Vaginal Hysterectomy. O. S. Cofer.—p. 40.

Illinois Medical Journal, Chicago

85:53-104 (Feb.) 1944

The Japanese as I Know Them. H. H. Thomas.—p. 72.
Short Cuts in Endocrine Diagnosis and Therapy. J. H. Hutton.—p. 78.
Which Peptic Ulcers Should Be Operated On? K. A. Meyer and F. Steigmann.—p. 82.
Generalized Lymphosarcomatosis with Marked Involvement of Brain. J. M. Radzinski and M. E. Uznanski.—p. 87.
Duties of Pathologist in United States Public Health Service. J. M. Lubitz.—p. 89.

Indiana State Medical Assn. Journal, Indianapolis

37:109-168 (March) 1944

*Cerebral Arteriography. S. W. Gross.—p. 109.
Indications for Paracentesis of Anterior Chamber. P. C. Kronfeld.—p. 113.
*Use of Octofollin in Conditions of Estrogen Deficiencies and in Gonorrheal Vulvovaginitis. A. S. Jaeger.—p. 117.
Technical Improvements and Decline in Postoperative Mortality. C. N. Combs.—p. 120.
Congenital Dilatation of Pulmonary Artery with Erythremia. E. Rothstein and H. B. Pirkle.—p. 124.
Erythroblastosis Fetalis. G. A. Collett, W. Dodds and R. R. Pollom.—p. 126.
Sympathetic Ophthalmia. H. C. Wurster.—p. 130.

Cerebral Arteriography.—Gross exposed the common carotid by means of a small incision with the use of local anesthesia and injected the vessel under direct vision. Before the contemplated intracarotid injection of diodrast the patient should be questioned regarding asthma and other allergic disorders and hypersensitivity to iodine compounds. Contrast mediums are contraindicated in the presence of severe liver disease or nephritis. On the day before the arteriography the patient should have an intradermal or conjunctival test to rule out hypersensitivity to diodrast. Whereas formerly cerebral arteriography was advised only when accurate diagnosis was not possible by other means, at the present time there should be no hesitation in carrying out this procedure whenever information regarding alterations in the cerebral arteries would add to the diagnosis. Cerebral arteriography is most useful in the detection and accurate localization of cerebral aneurysms, arteriovenous fistulas, varices, vascular malformations, vascular tumors and other pathologic processes which implicate the intracranial blood vessels. Space consuming lesions, such as tumors, cysts and abscesses, are localized by the deformation which they produce in the cerebral arteries. The nature of a lesion may often be suspected from the arteriogram. In cases of malignant gliomas of the brain, fine, small vessels, many of them forming a dense network with lacunar widening in the region of the tumor, are found. In meningiomas net shaped and bundle shaped small vessels that radiate into the tumor are readily identified. In sarcomas a combination of the findings of the two other types is found. Cysts and abscesses are diagnosed by the absence of blood vessels in the area involved. Intracranial aneurysms which simulate tumors are easily recognized by arteriography.

Octofollin in Estrogen Deficiencies and Gonorrheal Vulvovaginitis.—Jaeger employed octofollin, a synthetic estrogenic substance, in the treatment of 140 patients. The substance was used in sesame oil for parenteral administration (5.0 mg. per cubic centimeter), as tablets of 0.5, 1, 2 and 5 mg. each, and in the form of small suppositories containing 1 mg. for the local treatment of gonorrheal vaginitis in children. The children treated numbered 30. There were also 73 women with menopausal disorders, 30 women under 40 with endocrine dysfunctions, 5 women with senile vaginitis and vulvovaginal and anorectal pruritus, and 2 women with acute mastitis. The clinical results have been satisfactory. All of the 73 patients classed as "menopausal" obtained relief. In cases of menstrual disturbance the results were not perfect. A better response was obtained with this estrogen when thyroid in varying amounts was used as supplemental therapy. This has been Jaeger's experience in the administration of any estrogen and serves to point out anew the pluriglandular nature of the great majority of endocrine dysfunctions. Octofollin is an excellent estrogenic agent and is to be preferred to diethylstilbestrol. In gonorrheal vaginitis of little girls, octofollin either parenterally in tablet form or locally in suppositories or vaginal inserts produced a rapid maturation of the vaginal mucosa and in conjunction with sulfonamides and local therapy yields negative smears somewhat sooner than when the other estrogenic substances, natural or synthetic, were used.

Iowa State Medical Society Journal, Des Moines

34:45-92 (Feb.) 1944

Intrathoracic Tumors as Problem in Diagnosis. R. J. Harrington.—p. 45.
"Well Developed, Well Nourished." J. D. Boyd.—p. 61.
Agranulocytosis Following Sulfadiazine Administration. H. B. Weinberg.—p. 63.

Journal of Aviation Medicine, St. Paul

15:1-74 (Feb.) 1944

Medical Problems in Overseas Air Transport Service. E. Day, R. B. Miller, L. White and J. M. Baldwin.—p. 2.
Problem of Fatigue Among Student Pilots at Naval Air Training Center, Pensacola, Florida. A. Graybiel, O. Horwitz and D. Gates.—p. 9.
Flight Testing of Items of Medical Equipment Used by Military Pilots and Their Crews. W. R. Lovelace II and J. A. Resch.—p. 26.
Use of Gas Mask for Relief of Occluded Eustachian Tubes and Sinuses. O. S. Gibbs.—p. 32.
Aeroneurosis. S. Schnur.—p. 36.

Journal of Bacteriology, Baltimore

47:117-220 (Feb.) 1944

Aerobic Decomposition of Cellulose by Thermophilic Bacteria. H. C. Murray.—p. 117.
Variation of Group C Hemolytic Streptococci. H. E. Morton and Harriet E. Sommer.—p. 123.
Studies on Gonococcus: I. Constituents of Cell. H. E. Stokinger, Helen Ackerman and C. M. Carpenter.—p. 129.
Id.: II. Properties of Antigenic Fraction Isolated from Cell Free Gonococcal Broth Supernatants. H. E. Stokinger, Helen Ackerman and C. M. Carpenter.—p. 141.
Id.: III. Quantitative Agglutinative Reactions of Neisseria with Special Reference to Neisseria Gonorrhoeae. H. E. Stokinger, C. M. Carpenter and Jane Plack.—p. 149.
Vitamin Requirements of Lactose Fermenting and Certain Other Yeasts. M. Rogosa.—p. 159.
Arabinose Fermenting Bacterium of Lactose Negative, Mannitol Negative Shigella Group. W. B. Christensen and G. H. Gowen.—p. 171.
Bactericidal and Bacteriostatic Action of Crystal Violet. C. E. Hoffmann and O. Rahn.—p. 177.
*Studies on Aspergillus Flavus: II. Production and Properties of Penicillin-like Substance—Flavacidin. Clara M. McKee, G. Rake and C. L. Houck.—p. 187.
Penicillin: I. Methods of Assay. W. H. Schmidt and A. J. Moyer. —p. 199.

Flavacidin, a Penicillin-like Substance.—McKee and her associates state that the mold Aspergillus flavus produces under certain conditions a substance, flavacidin, which resembles penicillin. Submerged growth in a modified Czapek-Dox medium with agitation and aeration is the most suitable of these conditions. The biologic characteristics of flavacidin and penicillin are similar: (1) Both are highly active against gram-positive organisms and relatively inactive against gram-negative bacilli; (2) the two protect mice in equal degree against pneumococcic infection; (3) both are highly soluble and hence are readily absorbed after parenteral inoculation and are quickly excreted by the kidneys; (4) cultures resistant to the action of penicillin are resistant also to flavacidin but not to other antibiotic substances; (5) an enzyme active against penicillin is active also against flavacidin but not against other antibiotic substances.

Journal of Experimental Medicine, New York

79:129-234 (Feb.) 1944

Depression of Anaerobic Glycolysis of Embryonic Tissue by Western Strain of Equine Encephalomyelitis Virus: Prevention of This Effect by Specific Immune Serum. J. Victor and C. H. Huang.—p. 129.
Studies on Chemical Nature of Substance Inducing Transformation of Pneumococcal Types: Induction of Transformation by Desoxyribonucleic Acid Fraction Isolated from Pneumococcus Type III. O. T. Avery, C. M. MacLeod and M. McCarty.—p. 137.
Virus Causing Pneumonia in Cats and Producing Elementary Bodies. J. A. Baker.—p. 159.
Study of Conditions for Optimum Production of PR8 Influenza Virus in Chick Embryos. G. L. Miller.—p. 173.
Quantitative Aspects of Red Blood Cell Agglutination Test for Influenza Virus. G. L. Miller and W. M. Stanley.—p. 185.
Mouse Infectivity Titration of Influenza Virus. M. A. Lauffer and G. L. Miller.—p. 197.
Action of Crystalline Proteolytic Enzymes on Angiotonin. A. A. Plentl and I. H. Page.—p. 205.
Renal Pathology of Nutritional Hypertension in Rats. R. M. Calder. —p. 215.
Effect of Vitamin B_1 Deficiency and of Restricted Food Intake on Response of Mice to Lansing Strain of Poliomyelitis Virus. Claire Foster, J. H. Jones, W. Henle and Frieda Dorfman.—p. 221.

Journal of Immunology, Baltimore

48:87-154 (Feb.) 1944

Antigenic Relationships of Shigella Paradysenteriae. K. M. Wheeler. —p. 87.
Immunologic Specificity of Sulfonamide Protein Conjugates as Demonstrated by Anaphylaxis in Guinea Pigs and Schwartzman Phenomenon in Rabbits. I. E. Gerber and M. Gross.—p. 103.
Recovery of Virus of Lymphocytic Choriomeningitis from Erythrocytes of Infected Animals. G. Shwartzman.—p. 111.
Isolation and Characterization of Influenza Virus B (Lee Strain). D. G. Sharp, A. R. Taylor, I. W. McLean Jr., Dorothy Beard, J. W. Beard, A. E. Feller and J. H. Dingle.—p. 129.

Journal of International College of Surgeons, Chicago

7:1-84 (Jan.-Feb.) 1944

Self-Alining Method of Treating Fractures of Long Bones. R. Anderson.—p. 1.
Surgical Treatment of Tuberculous and Malignant Diseases of the Respiratory System. C. M. Griffith.—p. 9.
Architectonic Surgery of Bones. A. O. Tirado.—p. 15.
Cerebral Injuries. M. S. Garibay.—p. 24.
Modification of Technic of Ventriculography. M. Vazquez.—p. 28.
*Adult Tissue Extracts in Promotion of Wound Healing. F. Mandl. —p. 34.
Suturing Infected Wounds of Face. H. D. Guilbert.—p. 44.
Present Status of Functional Liver Tests. A. O. Wilensky.—p. 50.
Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles: Operation Restricting Hip Joint to Movements in Two Axes. E. Spira.—p. 59.
Argumosa's Two Methods of Blepharoplasty (Usually Attributed to Other Authors). M. Márquez.—p. 63.

Tissue Extracts in Wound Healing.—Instead of using embryonic tissue to accelerate the healing of wounds, Mandl used adult tissue extracts, as had been suggested by Doljanski. At first he used saline extracts prepared from the heart of adult chickens. This extract was applied by the moist chamber method. Schloss used this extract in 58 cases and found that healing was effected in 35 cases and improvement obtained in 14, while in 9 the condition remained unchanged. Since the preservability of the saline adult tissue extracts is limited, the author proceeded to study the method devised by Werner and Doljanski, who isolated certain fractions from the tissue extracts and prepared them in the form of a powder. A thin layer of this powder is applied to the surface of the wound. In case of infection the tissue powder is mixed with sulfanilamide. This powder was used in 26 chronic wounds which refused to heal or did not respond to other methods of treatment, in 5 surgical wounds and in 5 wounds in which ordinarily grafting would have been done. Of the 26 chronic wounds all but 6 responded to the powder and there was no failure in the remaining 10 cases. The results with the tissue extracts were particularly convincing when it was preeminently the absence of epithelization that delayed the healing of the wound. Wounds that have been under plaster of paris often show excellent granulations but no epithelization. In cases of this type the tissue extracts are particularly effective. Positive results were obtained also in diabetic ulcers, in trophic ulcers and in ulcers resulting from burns.

Journal of Nat. Cancer Inst., Washington, D. C.

4:339-428 (Feb.) 1944

*Incidence of Leukemia in Physicians. P. S. Henshaw and J. W. Hawkins, with technical assistance of H. L. Meyer, J. Woodruff and J. F. Marshall.—p. 339.
Organizational Structure and Activities of State Cancer Programs. J. W. Hawkins.—p. 347.
Measurement of Epithelial Growth in Surgical Wounds of Rabbit's Ear. P. S. Henshaw and H. L. Meyer.—p. 351.
Injection and Clearing Method for Rabbit's Ear. Thelma B. Dunn and A. M. Kessel.—p. 359.
Multiple Tissue Carrier for Histologic Technic. A. M. Kessel.—p. 361.
Production of Malignancy in Vitro: VII. Metabolism and Biotin Content of Tumors Produced. D. Burk, W. R. Earle and R. J. Winzler, with technical assistance of Doris F. MacNeary, Marie Hesselbach, Emma Shelton and E. L. Schilling.—p. 363.
Chromosomal Changes in Epidermal Carcinogenesis. J. J. Biesele and E. V. Cowdry.—p. 373.
Studies on Hepatomas: I. Size and Spacing of Multiple Doses in Induction of Carbon Tetrachloride Hepatomas. A. B. Eschenbrenner, with technical assistance of Eliza Miller.—p. 385.
Transplantable Osteogenic Sarcoma Originating in a C3H Mouse. M. K. Barrett, A. J. Dalton, J. E. Edwards and J. P. Greenstein, with technical assistance of Virginia C. Briggs.—p. 389.
Importance of Genetic Influence of Occurrence of Mammary Tumors in Virgin Female Mice. W. E. Heston and H. B. Andervont. —p. 403.
Effect of Amino Acids on Induction of Leukemia in Mice. J. White, G. B. Mider and W. E. Heston.—p. 409.
Effect of Diethylstilbestrol on Mammary Tumor Formation in Strain C3H Mice Fed Low Cystine Diet. Florence R. White and J. White. —p. 413.
Blood Proteose and Cancer. R. J. Winzler and D. Burk, with technical assistance of Marie Hesselbach.—p. 417.

Leukemia in Physicians.—Henshaw and Hawkins cite clinical and experimental observations from the literature which indicate an etiologic significance of radiation in leukemia. There is no direct proof that radiation actually acts as a carcinogenic

agent in the induction of leukemia. The authors thought it desirable to compare the incidence of leukemia in persons occupationally exposed to radiation with that in others not so exposed. Since it may be presumed that physicians as a group are more exposed to radiation than is the average person, the authors undertook to determine the incidence of leukemia in physicians and in the general population. Data were obtained from the death lists of THE JOURNAL, from the mortality reports of the United States Bureau of the Census and from an unpublished compilation of the United States Public Health Service. Comparisons were made on the basis of (1) the ratio of deaths from leukemia to deaths from cancer, (2) ratio of deaths from leukemia to total death rates, and (3) death rates from leukemia. Leukemia was recognized approximately 1.7 times more frequently among physicians than among white males in the general population. While these observations furnish no direct proof that radiation acts to incite leukemia in human beings, they are in accord with the findings on experimental animals in which exposure to x-rays increased the incidence of leukemia.

Journal of Neurosurgery, Springfield, Ill.

1:1-82 (Jan.) 1944

Some of Harvey Cushing's Contributions to Neurological Surgery. G. Horrax.—p. 3.
*Use of Products Prepared from Human Fibrinogen and Human Thrombin in Neurosurgery: Fibrin Foams as Hemostatic Agents; Fibrin Films in Repair of Dural Defects and in Prevention of Meningocerebral Adhesions. F. D. Ingraham and O. T. Bailey. —p. 23.
Radiographic Control for Paravertebral Injection of Alcohol in Angina Pectoris. J. C. White and R. W. Gentry.—p. 40.
Multiple Meningiomas: Report of 2 Cases. J. A. Mufson and L. M. Davidoff.—p. 45.
Perforator and Ball Burr. K. G. McKenzie.—p. 58.
Cerebrospinal Rhinorrhea—Surgical Repair. W. J. German.—p. 60.
Lucite Calvarium—Method for Direct Observation of Brain: I. Surgical and Lucite Processing Technics. C. H. Shelden, R. H. Pudenz, J. S. Restarski and W. McK. Craig.—p. 67.
Chemotherapy of Intracranial Infections: IV. Treatment of Pneumococcal Meningitis by Intrathecal Administration of Penicillin. C. Pilcher and W. F. Meacham.—p. 76.

Fibrin Foams and Fibrin Films in Neurosurgery.—Ingraham and Bailey describe experimental, clinical and pathologic studies on the use of "fibrin foam" as a hemostatic and on "fibrin film" as a dural substitute, and in the prevention of meningocerebral adhesions. Both substances are derived by fractionation of human blood plasma. Fibrin foam is an effective absorbable hemostatic agent. It easily controls oozing from the dura, the beds of central nervous system tumors and the brain substance as well as venous bleeding from the spinal veins, superficial cerebral veins and the dural sinuses. Miscroscopic studies of experimental and human material showed that fibrin foam is rapidly absorbed and excites a minimal tissue reaction. Fibrin films have been used as a dural substitute and in the prevention of meningocerebral adhesions. Patients followed up to nine months have had satisfactory results. These have paralleled observations in a series of monkeys. Both fibrin foam and fibrin film may be used at the same time as sulfadiazine and penicillin without change in tissue reactions.

Journal of Nutrition, Philadelphia

27:123-212 (Feb.) 1944

Nutritional Dermatoses in Rat: IX. Evaluation of Interrelationship of Magnesium Deficiency and Deficiencies of Vitamin B Complex. M. Sullivan and Virginia J. Evans.—p. 123.
*Nutrition and Tolerance to Atabrine. D. M. Hegsted, J. M. McKibbin and F. J. Stare.—p. 141.
Effect of Atabrine on Choline Deficiency in Young Rat. D. M. Hegsted, J. M. McKibbin and F. J. Stare.—p. 149.
Vitamin A Storage and Factors That Affect the Liver. C. C. Clayton and C. A. Baumann.—p. 155.
Physiologic and Biochemical Functions in Normal Young Men on Diet Restricted in Riboflavin. A. Keys, A. F. Henschel, O. Mickelsen, J. M. Brozek and J. H. Crawford.—p. 165.
*Influence of Protein Content of Diet on Fat Digestibility. R. H. Barnes, Margaret F. Primrose and G. O. Burr.—p. 179.
Study of Diet of Twenty Women in Moderate Income Group. J. C. Winters and Ruth E. Leslie, with the technical assistance of Catherine Donnell.—p. 185.
Studies on Vitamin E Deficiency in Chicks. H. Dam.—p. 193.

Nutrition and Tolerance to Atabrine.—Hegsted and his collaborators report experiments designed to determine whether various dietary regimens affect the toxicity of atabrine over extended periods. Rats were fed atabrine at levels of 0 to 65 mg. per hundred grams of ration. Young rats consumed an amount equal to approximately 10 per cent of their body weight daily. Thus levels of the drug per hundred grams of ration in short experiments are similar to levels in terms of per kilogram of body weight daily. Experiments were made also on chicks. On the basis of their observations the authors concluded that: 1. Atabrine added to an adequate diet in levels of 25 mg. per kilogram of body weight daily or less is completely nontoxic as judged by growth, general appearance and behavior, gross and microscopic pathologic changes and reproductive ability. 2. Levels of 40 to 65 mg. per hundred grams of ration retard growth by 20 to 30 per cent, the fur is discolored, and the animals are unkempt. The addition of various vitamins, yeast or protein to an already adequate diet does not prevent these changes. 3. The slow growth obtained on suboptimal levels of riboflavin or protein is further decreased by the addition of 40 mg. of atabrine to 100 Gm. of the diet. With diets suboptimal in vitamin A, addition of atabrine does not cause a further reduction in growth rate. 4. On the basis of rate of growth with diets containing atabrine, the chick is from three to four times as tolerant of the drug as is the rat.

Protein Content of Diet and Fat Digestibility.—In the course of nutrition studies in which two levels of protein were fed to rats, Barnes and his associates noticed that the groups receiving the lower protein diets excreted feces that were consistently light in color. The fat content was considerably elevated in the feces of the rats receiving the lower protein diets. Comparisons of fat digestibilities in rats receiving diets containing approximately 14 or 30 per cent protein revealed that the lower protein intake is associated with a lower fat digestibility. A well absorbed fat, such as lard, is influenced only slightly, while more poorly digestible fats, such as lard containing hydrogenated fat and butter fat, are more seriously affected.

Journal of Pediatrics, St. Louis

24:123-248 (Feb.) 1944

*Mechanism of Muscle Spasm in Poliomyelitis. H. Kabat and M. E. Knapp.—p. 123.
Traumatic Cardiac Injury in Child with Probable Rupture of Interventricular Septum. E. D. Bayrd and S. Gibson.—p. 138.
Late Effects of Severe Asphyxia Neonatorum: Preliminary Report. R. A. Darke.—p. 148.
Effect of Vitamin D from Cod Liver Oil and Tuna Liver Oil on Serum Phosphatase Concentrations in Rachitic Infants. D. J. Barnes, Bertha Munks and M. Kaucher.—p. 159.
Further Observations on Use of Single Massive Doses of Vitamin D in Prevention of Rickets. I. J. Wolf.—p. 167.
*Comparative Toxicities of Sulfadiazine and Sulfathiazole in Children. J. O. Dowrie and M. H. Abramson.—p. 176.
Advances in Chemotherapy of Influenzal Meningitis. M. L. Blumberg, E. Tannenbaum and M. Gleich.—p. 182.
Acrodynia in 13 Year Old Boy: Report of Case. Katherine Anderson. —p. 186.
Congenital Leukemia: Report of 2 Cases. F. S. Cross.—p. 191.
Sublingual Granuloma in Infancy (Riga-Fede's Disease): Report of 2 Cases. M. Abramson and J. O. Dowrie.—p. 195.
Fried Food for Children? F. H. Richardson.—p. 199.
Psychiatric Consultation Service in Pediatric Outpatient Department. Mabel Huschka.—p. 206.

Muscle Spasm in Poliomyelitis.—According to Kabat and Knapp the emphasis placed on muscle spasm is one of the fundamental innovations of the Kenny concept of poliomyelitis. The authors gave intravenous injections of pentothal sodium in order to produce loss of consciousness and elimination of pain. Muscle spasm in poliomyelitis appeared to be of two types: (1) muscle hypertonus and (2) hyperirritable stretch reflex. Muscle spasm is relaxed temporarily by spinal anesthesia or block of the myoneural junction in cases of acute and subacute poliomyelitis. Intravenous pentothal sodium decreases muscle spasm moderately in some patients and is ineffective in others. Muscle spasm in poliomyelitis has a neurogenic mechanism and is apparently the result of an increased discharge of nerve impulses through the motor neurons. There is evidence that the pathologic basis of muscle spasm in poliomyelitis is a lesion of internuncial neurons in the gray matter of the spinal cord. The muscle spasm is produced as a result of release of proprioceptive reflexes from inhibition. Muscle spasm has been produced in experimental animals by temporary arrest of circulation in the spinal cord. Correlated with this muscle spasm, the spinal cord showed a lesion localized to the internuncial neurons, while the anterior horn cells appeared normal. In 68 cases of

poliomyelitis postmortem examinations revealed an internuncial lesion in almost every patient. Twenty-six patients showed an internuncial lesion with relatively normal anterior horn cells. Measurements of chronaxia of muscles in 14 patients with poliomyelitis who exhibited severe muscle spasm demonstrated that there is no correlation of muscle spasm with anterior horn cell damage. Many muscles in spasm showed a normal chronaxia while others showed more or less pronounced increases in chronaxia. These results suggest that destruction of anterior horn cells is not the basis of muscle spasm in poliomyelitis. Neostigmine, acting on the spinal cord to inhibit proprioceptive reflexes, relaxes muscle spasm and may be of therapeutic value for poliomyelitis.

Comparative Toxicities of Sulfadiazine and Sulfathiazole in Children.—Dowrie and Abramson compared the toxic reactions observed in 54 children treated with sulfadiazine with those in 53 children treated with sulfathiazole. In the first group granulocytopenia occurred in 44.3 per cent; in the second, in 37.8 per cent. There were no cases of agranulocytosis, even when the drug was continued after granulocytopenia appeared. Simultaneous administration of alkali was employed in the majority of instances. The only case of gross hematuria occurred in a child who had not received alkali. No instances of anuria were observed. The use of alkali appears greatly to lessen the danger of complications in the urinary system. Drug rashes occurred four times, all in children receiving sulfathiazole. Three of these resembled erythema nodosum. The administration of ascorbic acid in massive dosage appeared to have no detoxifying effect for the two sulfonamides studied. These observations fail to reveal any striking difference in toxicity between sulfadiazine and sulfathiazole, with the exception of the greater incidence of rashes with the latter.

Journal of Thoracic Surgery, St. Louis

13:1-66 (Feb.) 1944

*Allergy and Tuberculous Tracheobronchitis. W. H. Oatway Jr., J. W. Gale and W. A. Mowry.—p. 1.
Huge Intrathoracic Fibroma: Report of Case. O. T. Clagett and P. F. Hausmann.—p. 6.
Mediastinal Lipoma: Case Report. W. L. Watson and J. A. Urban.—p. 16.
Death from Air Embolism Following Bronchoscopy: Case Report. R. A. S. Cory.—p. 30.
Serious Hemorrhage During Closed Internal Pneumonolysis: Case Report. R. A. S. Cory.—p. 32.
Thoracoplasty for Tuberculosis: Late Results. A. R. Valle.—p. 36.
*Pseudobronchiectasis. B. Blades and D. J. Dugan.—p. 40.
Threshold Variations to Vagus Nerve Stimulation. C. L. Burstein, S. J. Martin and E. A. Rovenstine.—p. 49.
Chylothorax. A. M. Olsen and G. T. Wilson.—p. 53.
Anomalous Pulmonary Veins: Report of Case. D. E. Compere and H. F. Forsyth.—p. 63.

Allergy and Tuberculous Tracheobronchitis.—Oatway and his associates employed bronchoscopy at least once in the examination of 100 patients suspected of having tuberculous tracheobronchitis. A routine history, physical examination, complete blood count (including eosinophils), sedimentation rate, chest x-ray examination and sputum and gastric concentration studies for tubercle bacilli were obtained in all cases. Smears from the bronchi of a few patients were examined for eosinophils. The x-ray films were examined for the presence of a tension cavity, atelectasis or a dominantly truncal lesion. A special history was taken for the presence of a personal or family history of asthma, hay fever, allergic rhinitis, migraine, food sensitivity or urticaria and other suggestive skin lesions. Skin tests were made on all patients able to remain long enough in the hospital for this purpose. The authors arrive at the following conclusions: Patients with tuberculous tracheobronchitis react more strongly to routine allergen skin tests than do tuberculous patients without such lesions. Tuberculous tracheobronchitis occurs more frequently in women than in men. The most serious bronchial lesions occur in women with clinical evidence of allergy. Patients with tuberculous tracheobronchitis are not unusually reactive to tuberculin by skin test. However, those who were most sensitive to tuberculin were most sensitive also to the routine allergens by skin test. There is a correlation between a personal history of allergy and a positive reaction to routine allergens, although most patients with a negative personal history react to some allergens. There is an apparent direct relationship between a personal history of allergy and the presence of tuberculous tracheobronchitis. Clinical evidence of tuberculous tracheobronchitis correlates well with the finding of bronchial lesions by bronchoscopy; eosinophilia does not. Reaction to the routine allergens does not correlate well with clinical signs. Attempts to desensitize patients with tuberculous tracheobronchitis, using tuberculin, do not seem indicated. Attempts to control an allergic process by desensitization to any pertinent routine allergens or by other effective means seem legitimate and indicated.

Pseudobronchiectasis.—Blades and Dugan emphasize the effects of atypical pneumonia on the bronchi and the production of pseudobronchiectasis. Primary atypical pneumonia is associated with peculiar x-ray shadows in the lungs. The roentgenograms in these cases are usually characterized by mottled densities. Lobular and lobar atelectases are common, with wide variance of distribution and extent. Sometimes the roentgenographic manifestations of the disease are bizarre and misleading. Basilar densities in the roentgenogram of a patient with a chronic productive cough might easily lead to a preliminary diagnosis of bronchiectasis. Delineation of the bronchi with radiopaque oil will, under ordinary circumstances, settle the diagnostic problem when bronchiectasis is suspected, but the authors noted that following atypical pneumonia iodized oil bronchograms may occasionally be misleading and give the erroneous impression that the condition is true bronchiectasis. Their experiences suggest that a critical analysis of the history, careful examination of the sputum and the appearance of the bronchial tree when examined with the bronchoscope will warn the thoracic surgeon that the disease may not be true bronchiectasis, provided he is aware that atypical pneumonia can produce temporary dilatations of the bronchi. A positive diagnosis of pseudobronchiectasis is justifiable only when subsequent visualization of the bronchial tree reveals normal configuration of bronchi which were formerly dilated. Categorical statements on the length of time pseudobronchiectasis resulting from atypical pneumonia may persist are impossible. Probably in a few cases the bronchi will remain enlarged for as long as three months. In most instances at least part of the bronchi will have returned to normal in four to six weeks. If the examiner is aware that atypical pneumonia is capable of producing temporary dilatations of the bronchi, it would be easy to consider for a time an early or dry bronchiectasis an example of pseudobronchiectasis. This would not jeopardize the patient's future health or constitute a grave error in clinical judgment; moreover, progression of symptoms and repeated demonstration of the bronchial dilatations would soon establish the correct diagnosis.

Journal of Urology, Baltimore

51:117-234 (Feb.) 1944. **Partial Index**

Pelvic Single Kidney: Report of Case. O. S. Lowsley and J. H. Menning.—p. 117.
Retroperitoneal Tumors. G. F. Hoch.—p. 128.
*Use of "Depropanex"—Deproteinated Pancreatic Tissue Extract—for Relief of Renal and Ureteral Pain: Effect in Passage of Renal and Ureteral Stones. T. J. Kirwin, O. S. Lowsley and J. H. Menning.—p. 132.
Primary Osteogenic Sarcoma of Bladder. R. G. Tremblay, A. R. Crane and A. Harris.—p. 143.
Hyperplastic Change at Vesical Neck in Female. J. A. Hyams and S. R. Weinberg.—p. 149.
Large Congenital Prostatic Diverticulum. F. L. Senger and E. K. Morgan.—p. 162.
Congenital Valvular Obstruction of Prostatic Urethra: Notes on Surgical Procedure. R. M. Nesbit.—p. 167.
Hypergenitalism in Childhood: Consideration of Hypothalamic-Hypophysial Apparatus. C. M. McKenna, I. P. Bronstein and J. H. Kiefer.—p. 182.
Simple and Practical Cystometer. C. E. Jacobson Jr.—p. 189.
Failure of Cystometrogram as Diagnostic Test: Clinical Observations and Statistical Analysis. H. M. Weyrauch, E. L. Lucia and Joan Howard.—p. 191.
Treatment of Resistant Gonorrhea with Induced Hyperthermia Supplemented by Sulfonamide Therapy. J. H. Harrison, T. W. Botsford and F. P. Ross.—p. 215.
Blue Casts and Other Urinary Findings in Certain Individuals Following Intravenous Administration of Indigo Carmine. H. L. Douglass and C. G. Ransom.—p. 228.

Deproteinated Pancreatic Tissue Extract for Renal and Ureteral Pain.—Kirwin and his associates employed a saline solution of a chemically derived, protein free nitrogenous fraction obtained from an acid alcohol treatment of beef pancreas. Physiologic tests show it to be free from insulin, histamine and acetylcholine. The substance was administered to 20

patients with renal or ureteral calculi the size of which did not preclude the possibility of their being passed without assistance. Seven patients passed their stones several days after the drug was administered, but in none of these could it be said with certainty that the medication was directly responsible for the passage of the stone even though the inference was strong. In 12 cases relief of pain was complete, so that no additional analgesia was necessary. The authors used the pancreatic extract also in 33 patients who underwent cystoscopy. The patients were given 3 cc. of the extract before the instrument was introduced. There were 22 who experienced no pain whatever. In the control series of 34 there were only 9 who were entirely free from pain. The extract is usually given intramuscularly in doses of 2 to 4 cc. The authors conclude that the extract is an effective agent for the relief of renal and ureteral colic.

Kentucky Medical Journal, Bowling Green

42:31-60 (Feb.) 1944

Medical and Surgical Diseases of Prostate Gland. H. L. Kretschmer.—p. 33.
Chemotherapy in Digestive Disorders. J. A. Bargen.—p. 36.
Occupational Diseases. W. E. Doyle.—p. 45.
Elongated Styloid Process: Case Report. A. L. Juers.—p. 55.

42:61-92 (March) 1944

We Are Not Content. D. N. W. Grant.—p. 63.
Burns. C. S. Beck.—p. 68.
Scientific Exhibit at Southern Medical Association. M. Casper.—p. 72.
Sulfonamide Treatment of Acute Bacterial Meningitis. A. E. Brown.—p. 75.
Gastric and Duodenal Ulcer, Surgical Management. A. W. Allen.—p. 80.

Michigan State Medical Society Journal, Lansing

43:209-270 (March) 1944

Preventable Blindness. P. C. Kronfeld.—p. 209.
Management of Large Vesical Calculi. I. G. Downer.—p. 214.
*Clinical, Histopathologic and Inheritance Factors in Peroneal Muscular Atrophy (Charcot-Marie-Tooth Type). L. A. Schwartz.—p. 219.
Rhinolith in Child. F. T. Munson.—p. 231.
Chordoma: Report of Case. W. E. Keane.—p. 232.

Peroneal Muscular Atrophy.—Schwartz discusses a form of neural or neuritic atrophy, the heredofamilial peroneal muscular atrophy (Charcot-Marie-Tooth syndrome). He brings down to date the history of a family with this type of muscular atrophy, which was first reported by Macklin and Bowman in 1926. The author stresses its heredofamilial character, pointing out that the P family, of which the subsequent case presentation is a part, now has 26 cases in five generations. In this family males transmitted the disease three times, females seven times. It is generally accepted that males are more frequently affected than females. This is borne out in the P family histories, which show that, although males have transmitted the disease but three times in five generations, 13 males were affected. Peroneal atrophy usually begins in late childhood or youth. In the P family there was a tendency for the disease to appear at increasingly younger ages in succeeding generations. The first indication of progressive peroneal atrophy is atrophic weakness in the small extensor and abductor foot muscles, generally beginning in the abductors. Thereafter it spreads to the extensor longus hallucis, extensor communis digitorum and peronei, producing in combination with atrophy of small foot muscles a mild equinovarus deformity and "pied-en griffe." Flexor muscles of the ankle remain unaffected for the longest period, although they too become involved. There is the tendency to develop hammer toes and pes cavus, sometimes eliciting no complaint except the necessity for higher arched shoes. The arches slowly become higher, with hyperextension of the metatarsophalangeal joints coupled with flexion of the digital joints. With the slow spreading of the atrophy, all muscles below the knee joint are affected. The patient exhibits the typical "stork legs." The author reviews the genealogy of the P family and presents the case of a man seen by him who was a member of this family. In this patient treatment with vitamin E and B_6 was tried, because these vitamins proved effective in muscular atrophy. Adrenal cortex extract was instituted in an attempt to effect further permeability of circulation in skeletal muscles and blood capillary walls. Light and heat treatment was prescribed to relieve vasomotor symptoms and to make the patient more comfortable. Aminoacetic acid was given to provide added energy by increased protein metabolism. With this treatment there was some improvement, and subjective improvement is the best that can be hoped.

Military Surgeon, Washington, D. C.

94:131-188 (March) 1944

Work of Flight Surgeon. D. N. W. Grant.—p. 131.
Delayed Effects of Trauma of Abdominal Viscera. W. S. Bainbridge.—p. 135.
Some Problems of Relief and Rehabilitation. A. Gregg.—p. 140.
Air Evacuation. R. L. Meiling.—p. 143.
Wartime Physical Reconstruction. F. H. Krusen.—p. 147.
Wartime Experiences Aboard Naval Hospital Ship. M. J. Aston.—p. 157.
Soldiers Who Break Down in Battle: Some Predisposing Factors. W. T. Brown and M. Moore.—p. 160.
Soldiers Who Break Down: Family Background and Past History. W. T. Brown and M. Moore.—p. 162.
*Myocardial Infarction Following Reduction of Atmospheric Pressure in Low Pressure Chamber. E. E. Hammonds.—p. 163.
Adaptation of Government Issue Spectacles as Holder for Nasal Tube. E. Alexander Jr.—p. 166.
Torsion of Testicle on Epididymis: Case Report. C. Ferguson.—p. 167.

Myocardial Infarction Following Test in Low Pressure Chamber.—Hammonds reports a case of bends in the knees acquired by a student gunner while ascending in the chamber to 38,000 feet. Because of this he was removed from the chamber. When students were subjected to an altitude test of 17,000 feet under anoxic conditions to demonstrate oxygen want, this student gunner was also put in the chamber, since he had completely recovered from the bends. He had no complaints even during the anoxic period. He left the low pressure chamber at 11:30 p. m. and went to bed. He spent a restless night and was awakened in the morning for reveille. After hurriedly dressing he ran down the steps and stood reveille, and after reveille decided to brush his teeth before going to breakfast. He ran up the stairs and on reaching the top was seized with a viselike constriction in his chest which was incapacitating. His appearance was such that his sergeant had him taken to the hospital. On admission the student was short of breath, cyanotic and obviously ill. His pulse rate was 120 per minute, the heart sounds were indistinct and distant, the chest was full of moist, bubbling rales, and the blood pressure was 90/40. He was complaining of substernal constriction and pain. A diagnosis of myocardial infarction was made on the basis of electrocardiographic and roentgenographic examinations. Questioning revealed that prior to his enlistment the man had been sent home by the induction board because of a slight elevation of systolic blood pressure. This elevation disappeared following three days of bed rest, and he was admitted to the cadet school. Hammonds concludes that persons having evidence of cardiovascular abnormality should not be subjected to high altitudes, especially altitudes which produce more than 10 per cent oxygen unsaturation of arterial blood.

Minnesota Medicine, St. Paul

27:161-240 (March) 1944

*Potassium Thiocyanate in Hypertension. J. S. Blumenthal and M. Wetherby.—p. 177.
Diverticulitis. W. C. Carroll—p. 185.
Intrapleural Pneumonolysis. K. H. Pfuetze.—p. 188.
Human Serum and Plasma in Pediatric Practice. E. S. Platou and P. F. Dwan.—p. 190.
Recurring Retroperitoneal Fibromyxosarcoma. C. F. Dixon and J. L. Vadheim.—p. 203.

Potassium Thiocyanate in Hypertension.—Blumenthal and Wetherby used vitamin A in 20 cases and potassium thiocyanate in 70. Vitamin A had no effect in any. Potassium thiocyanate was given in 3 grain (0.2 Gm.) doses once daily by mouth. This was continued for one week, when the blood cyanate concentration and blood pressure were determined. If a sharp drop in blood pressure occurred or if toxic symptoms or severe weakness developed, the dose was decreased. If the blood cyanate level had not reached 12 mg. per hundred cubic centimeters, if no blood pressure drop occurred and if no signs of toxicity were present, the dose was increased by 3 grains daily every week or two until a drop did take place, the blood cyanate level did reach 12 mg. per hundred cubic centimeters

or toxic symptoms developed. When the symptoms, blood pressure, dosage and blood cyanate level had been correlated to the best results possible, the patient was observed at intervals of one to three months. A level higher than 12 mg. per hundred cubic centimeters was lowered by decreasing the dose. An attempt was made to keep the cyanate level as low as possible compatible with the well-being of the patient and lowering of the blood pressure. Potassium thiocyanate resulted in 15 per cent reduction in blood pressure in 32 cases and in 10 per cent in 15 cases. It gave symptomatic relief in 43 of 58 patients with symptoms of hypertension. The question of the ability of this drug to prolong life needs more intensive study over a long period of time.

Nebraska State Medical Journal, Lincoln

29:1-32 (Jan.) 1944

X-ray Diagnosis of the Nontuberculous Chest. F. L. Simonds.—p. 4.
Explosion Hazard in Anesthesia. S. D. Miller.—p. 9.
In Case of Accident—What Do We Need? J. E. M. Thomson.—p. 12.

29:33-64 (Feb.) 1944

Navigating the Medical Future with Confidence. E. H. Skinner.—p. 37.
Chemical Carcinogenesis, Drugs, Dyes, Remedies and Cosmetics, with Particular Reference to Bladder Tumors. E. Davis.—p. 41.
*Primary Diphtheria of Conjunctiva: Case. W. H. Morrison.—p. 51.
Malaria. W. S. Petty and L. O. Vose.—p. 53.

Primary Diphtheria of Conjunctiva.—Morrison differentiates three types of diphtheritic conjunctivitis: (1) the rare catarrhal form, (2) the more common pseudomembranous kind and (3) the typical membranous type. A child aged 7 months, whose eyes were red and discharged pus for several days, was not helped by irrigations. The lids were edematous and red but not boardlike. Smears showed staphylococci, and a culture revealed that the organism was Staphylococcus aureus. Sulfathiazole ointment 5 per cent applied locally three times a day and sulfathiazole orally every four hours day and night were given. Two days later the condition appeared unchanged. There was a gray transparent conjunctival membrane which could not be wiped off or torn away from the lids. The least manipulation of the conjunctiva caused bleeding. A culture was taken on Loeffler's medium and the child was given 5,000 units of diphtheria antitoxin. Within twelve hours the lid edema was gone, the child opened its eye spontaneously and no membrane could be seen. The culture contained organisms morphologically characteristic of diphtheria bacilli. This was not a true membranous type but rather pseudomembranous conjunctivitis, as the lids failed to assume a boardlike hardness and the membrane failed to involve the bulbar conjunctiva.

New England Journal of Medicine, Boston

230:209-242 (Feb. 24) 1944

Use of Refrigeration in Amputations and Peripheral Vascular Disease. E. E. O'Neil.—p. 209.
*Treatment of Pulmonary Edema Due to Gas Poisoning in War and in Civilian Life, with Special Reference to Use of Positive Pressure Respiration. A. L. Barach.—p. 216.
Normal Air Encephalograms in Patients with Convulsive Seizures and Tumor of Brain. H. H. Merritt and C. Brenner.—p. 224.
Cardiogenic Shock. N. H. Boyer.—p. 226.

Pulmonary Edema Due to Gas Poisoning.—Barach outlines a treatment for edema of the lungs following exposure to irritant gases such as hydrogen chloride, hydrogen bromide and hydrogen fluoride, chlorine, fluorine, bromine, sulfur dioxide and certain oxides of nitrogen, as well as phosgene, diphosgene and chloropicrin. The pathologic condition found after inhalation of irritating gases is that of intense congestion and inflammatory edema, followed by a cellular exudate with a varying amount of necrosis of the lining membrane of the respiratory passage. In many cases of pulmonary edema treated with rest, warmth and inhalation of air with a high oxygen concentration, the passage of serum from the capillaries into the alveoli continues and drainage through the respiratory passageway is impeded, with the ultimate development of bronchopneumonia and death. Barach and his colleagues developed an apparatus for administration of positive pressure in cases of pulmonary edema produced by gas poisoning. Inhalation of oxygen and helium-oxygen mixtures under positive pressure is of value in the treatment of obstructive dyspnea and acute pulmonary edema. The only contraindication to positive pressure respiration is the presence of shock. The employment of positive pressure respiration in cases of industrial gas poisoning indicates that edema of the lungs may be prevented and, when it has occurred, tends to respond to the administration of positive pressure in a far more successful way than with any hitherto suggested procedure. A pressure of 3 to 6 cm. of water is usually effective in the treatment of pulmonary edema. If all signs of edema have cleared, a gradual reduction of pressure over a period of hours is recommended. Prevention of pulmonary edema after exposure to an irritant gas is accomplished by inhalation of air or oxygen against positive pressure for two to three hours and subsequent trial periods of freedom from positive pressure to determine whether or not edema intervenes. Since pulmonary edema may take place as late as twelve hours after exposure, means for providing positive pressure should be at hand. The inhalation of a spray containing 0.5 cc. of 1 per cent epinephrine is helpful in cases in which bronchial spasm is present, and inhalation of 0.5 to 1.0 cc. of 1 per cent neosynephrine is suggested to increase the lumen of the tracheobronchial tree by vasoconstriction. Immediate administration of positive pressure is suggested in disasters in which phosgene or other gases are liberated.

230:243-272 (March 2) 1944

Proposed Extension of Social Security Program, with Special Reference to Health and Medical Aspects. I. S. Falk.—p. 243.
Blue Cross, Blue Shield and Wagner-Murray-Dingell Bill. N. W. Faxon.—p. 249.
*Prolonged Cases of Grief Reaction Treated by Electric Shock. A. Myerson.—p. 255.
Cardiogenic Shock. N. H. Boyer.—p. 256.

230:273-302 (March 9) 1944

Psychoneuroses of War. J. L. Henderson and M. Moore.—p. 273.
Meningitis in Children: Report of 28 Cases. C. H. Hollis and J. M. Baty.—p. 278.
New Theories Concerning Asthma. F. M. Rackemann.—p. 284.

Grief Reaction Treated with Electric Shock.—Myerson reports a study of 4 women in whom prolonged grief reaction followed a tragic bereavement. The prolongation, intensity and transformation of the grief were the pathologic features. All the patients fell into a vicious circle of nervous and mental disturbance from which it seemed impossible to rescue them by the ordinary therapeutic measures. In 1 case the abnormal mental state had persisted for years and it was necessary to produce an amentia, to expunge for a time almost all memory before the personality could reorganize itself along normal lines. In the other 3 cases a few electric shocks brought about a striking and immediate improvement and recovery. It does not seem necessary to erase the memory of the traumatic experience to produce a readjustment to the altered life that bereavement has brought in its train. The shock treatment does not appear to have a psychologic foundation; rather, physiologic alterations of an unknown type seem to take place.

New Orleans Medical and Surgical Journal

96:341-384 (Feb.) 1944

"Near Misses" in X-Ray Diagnosis. F. J. Hodges.—p. 341.
Craniocerebral Trauma: Discussion of General Medical and Nursing Care. R. G. Spurling.—p. 347.
Leptospirosis: Report of 2 Cases. G. Balkin.—p. 351.
Urticaria Produced by Poisonous Caterpillars. V. D'Ingianni.—p. 356.
Physician's Role in Industrial Hygiene. J. G. Townsend.—p. 360.
Physiologic Action of Cortical Extracts and Desoxycorticosterone. C. M. Wilson.—p. 365.

96:385-434 (March) 1944

Maternal and Child Welfare in New Orleans. R. E. Arnell and J. M. Whitney.—p. 385.
Industrial Hygiene Program Today. J. G. Townsend.—p. 388.
A Comparison of the Ziehl-Nielsen and the Moss Cold Carbol Fuchsin Stains for Acid Fast Bacilli. D. Kirsch and J. R. Schenken.—p. 394.
Dysmenorrhea. B. B. Weinstein.—p. 396.
The Male Sex Hormone: Its Use and Abuse. L. B. Shpiner.—p. 399.
Louisiana Statewide Serologic Evaluation Survey, 1942-1943. I. L. Schamberg.—p. 406.
Chailé Oration. J. A. Bacon.—p. 412.
The Limitations of Medical Education in Wartime. J. H. Musser.—p. 414.

Ohio State Medical Journal, Columbus

40:101-196 (Feb.) 1944

Note on Rehabilitation: Work as Therapy. J. Fetterman.—p. 117.
The Doctor's Heart. J. H. Musser.—p. 123.
Method for Repair of Finger Amputation. W. Kutler.—p. 126.
Nature and Clinical Use of Penicillin. J. P. Tucker.—p. 127.
*Critical Examination of the Factors Underlying Blood Donor Syncope and Their Bearing on Treatment of Surgical Shock. R. D. Barnard. —p. 130.
Report of Hospital Obstetrical Society of Ohio. L. B. Wylie.—p. 136.
Why Otolaryngologist Should be Allergy Minded. E. King.—p. 138.

Factors Underlying Blood Donor Syncope.—Barnard says that in the voluntary blood donor centers about 7 per cent of persons develop the syncope syndrome either before, during or after the bleeding. Bleeding is a psychologic rather than a physical incitant, as many donors will faint before the actual withdrawal of the blood. The syncope syndrome under these circumstances is indistinguishable from that evidenced after the withdrawal of a full pint of blood. Large persons from whom the withdrawal of a fixed quantity of blood represents a smaller fraction of the total blood volume show just as much tendency toward syncope as smaller persons. The predisposition to donor syncope is found most frequently in "vagotonics." The relatively high incidence of syncope reactions in the national blood donor centers over that which obtains among emergency donors is due to a disproportionately high percentage of a certain type of physically and psychologically constituted individual among the patrons of the former. The physical stigmas of vagotonic persons include an inadequate musculovenous mechanism and diminished skin capillarity which predisposes them to circulatory failure and collapse. The hormonal nature of the predisposing factors to syncope are analyzed and found to be comparable to those operating in surgical shock. The acetylcholine theory is in itself inadequate to account for all features, which, however, are explained by assuming the operation, in addition, of idiopsychic nerve impulses. Nikethamide is the most effective single pharmacodynamic agent for the treatment of donor syncope. It is postulated that this efficacy may be due to a supposed ability of nikethamide to engender a choline esterase. As in the homologous condition of traumatic shock, sedation and psychotherapy play an important part in the treatment of donor syncope.

Pennsylvania Medical Journal, Harrisburg

47:545-640 (March) 1944

New Developments in Industrial Dermatoses. L. Schwartz.—p. 559.
Pneumonia in General Practice. W. J. Stainsby.—p. 562.
Surgical Management of Acute Cholecystitis. D. B. Pfeiffer and F. M. S. Patterson.—p. 564.
Case Report of Bullous Lichen Planus with Recovery Following Use of Estrogenic Hormone. I. Zugerman and P. P. Gross.—p. 571.
*Use of Blood Plasma Intraperitoneally in Treatment of Gastroenteritis in Infants. V. T. Curtin.—p. 575.
Vitamin C and Insulin Action. J. M. Rogoff, T. T. Sheppard, E. N. Nixon and Mary H. Green.—p. 579.
Certain Considerations in Treatment of Colles' Fracture. R. A. Deterling Jr.—p. 583.
Roentgen Diagnosis of Some of Lesions Adjacent to and Involving Diaphragm. E. P. Pendergrass.—p. 587.

Plasma Intraperitoneally in Gastroenteritis in Infants.—The difficulty of making blood transfusions in young infants induced Curtin and a collaborator to resort to the intraperitoneal introduction of blood. Frozen plasma was thawed out in warm water, withdrawn in a large syringe and injected into the peritoneal cavity in amounts of from 75 to 100 cc. More than one or two injections were rarely necessary. The "plasma lift" seems to keep the infant with gastritis going along until the proper food can be found and assimilated. Some 60 cases of acute gastroenteritis were treated. The intraperitoneal plasma injection was used with excellent results preceding and following operations for pyloric stenosis in infants with severe malnutrition and in 3 cases of severe hemorrhagic disease of the newborn. The use of blood plasma intraperitoneally in the treatment of gastroenteritis and allied conditions in infants is a therapeutic procedure of proved value, equal in all respects to the intravenous use of plasma. It is a simple procedure, applicable in the home as well as in the hospital, and in the treatment of shock, where it is impossible to transfuse intravenously. It is probable that the adult as well as the infant should benefit from the method.

Public Health Reports, Washington, D. C.

59:221-252 (Feb. 18) 1944

I. Comparison of Light Trap and Animal Bait Trap Anopheline Mosquito Collections in Puerto Rico. II. List of Mosquitoes of Puerto Rico. A. E. Pritchard and H. D. Pratt.—p. 221.
Susceptibility of Golden Hamster, Mesocricetus Auratus, to Plague. Margaret C. McMahon.—p. 234.

59:253-280 (Feb. 25) 1944

Index of Prevalence of Dental Caries in School Children. J. W. Knutson.—p. 253.

Review of Gastroenterology, New York

2:1-76 (Jan.-Feb.) 1944

Diagnostic Advantages of Thorotrast. C. W. McClure, I. R. Jankelson and H. Osgood.—p. 17.
Use of Garlic (Allisatin) in Gastrointestinal Disturbances: Clinical Study. H. Barowsky and L. J. Boyd.—p. 22.
Fluoroscopic Signs of Posterior Wall Tumors of Stomach, Especially Those Signs Developed by Palpatory Pressure: Study. S. Jonas. —p. 27.
Notes on Military Medicine and Surgery Through Centuries. H. I. Goldstein.—p. 37.
Cholecystitis, Its Diagnosis and Treatment. E. Katz.—p. 44.

Rhode Island Medical Journal, Providence

27:49-100 (Feb.) 1944

Practice of Oral Surgery by General Practitioner. H. S. Dunning. —p. 59.
Postwar Planning and Social Action. H. Finer.—p. 63.
Some Points in Laboratory Diagnosis of Malaria in the China-India-Burma Theater. I. A. Beck.—p. 65.

Rocky Mountain Medical Journal, Denver

41:1-72 (Jan.) 1944

Flight Surgeon Looks at War. E. C. Reinartz.—p. 20.
Management of Acute Head Injuries. M. T. Schnitker.—p. 27.
Diarrhea. F. B. Bailey.—p. 32.
Improved Rectal Binder. A. J. Chisholm.—p. 34.

41:73-144 (Feb.) 1944

Chest Injuries. W. R. Rumel.—p. 90.
Common Diseases and Their Treatment in Army Hospitals. V. R. Mason and W. J. Mitchell.—p. 96.
Surgical Shock. C. S. Roof.—p. 100.
Colorado Tick Fever. E. R. Mugrage, L. Florio and Mabel O. Stewart.—p. 103.
Obstetrics, Stepchild of Surgery. C. Powell.—p. 105.

41:145-224 (March) 1944

Psychiatric Problems in Military Service. L. Barbato.—p. 163.
*Rheumatic Pneumonia. K. T. Neubuerger and E. F. Geever.—p. 167.
"Is There Need for Radical Changes in Our Current System of Medical Service?" J. W. Amesse.—p. 169.
United Public Health League. J. S. Bouslog.—p. 173.
Acute Monocytic Leukemia: Case Report. H. J. Dodge, W. C. Black and E. R. Mugrage.—p. 177.

Rheumatic Pneumonia.—Neubeuerger and Geever made pathologic studies on 63 cases of active and quiescent rheumatic fever. In this group, 8 cases showed distinctive microscopic pulmonary changes. Sixty cases were used as controls, including various forms of acute pneumonia, organizing pneumonia and chronic passive congestion. On gross examination the lungs showed an increase in weight and areas of lobular, occasionally confluent, consolidation, with purplish red, sometimes granular congestion on the cut surface. Alterations in consistency, such as the "rubbery lung" mentioned by others, were not a striking feature. Microscopic examination revealed fibrinous exudation, focal fibrinoid necrosis of the alveolar walls with alveolitis, arteriolitis, mononuclear exudate, proliferation of the septal cells in the alveolar walls and peculiar granulomas ("Masson bodies") in the alveolar ducts and alveoli. Many of the lesions, in particular the focal fibrinoid necrosis and the arteriolitis, were consistent with the changes found in rheumatic infections in general. Bacteriologic studies failed to yield positive results. Some microscopic features, particularly the mononuclear cellular exudate, the septal cell stimulation and the vascular damage, were suggestive of virus etiology. From the observations on the 8 cases of rheumatic fever which showed distinctive microscopic pulmonary changes the authors conclude that rheumatic lung involvement may occur.

Surgery, St. Louis

15:211-366 (Feb.) 1944

Surgical Care of Wounded in United States Army. N. T. Kirk.—p. 211.
*Plastic Repair of Scar Contractures. P. W. Greeley.—p. 224.
*Epithelization as Affected by Nickel Pectinate and Other Agents. J. E. Hamilton.—p. 242.
Plasma Clot Suture of Nerves: Illustrated Technic. I. M. Tarlov. —p. 257.
*Tendon Transplants with Metal Nails. R. Sutherland and M. J. Rowe Jr.—p. 270.
Treatment of Intertrochanteric Fractures of Femur. W. G. Stuck. p. 275.
Hepatoma in Infancy and Childhood: Discussion and Report of Patient Treated by Operation. G. B. Packard and A. W. Stevenson.—p. 292.
Comments on Ileocolostomy and Intestinal Exclusion. J. H. Eckel and C. Holman.—p. 307.
Torula Infection: Review and Report of 4 Cases. R. E. Burger and C. B. Morton.—p. 312.
A "Lucite" Gastrostomy Tube for Pouch Dogs and Possibilities for Applications in Man. K. A. Merendino and S. S. Litow.—p. 326.

Plastic Repair of Scar Contractures.—Greeley maintains that by far the greater majority of contractures result from cutaneous defects that follow improperly managed third degree burns. Likewise, if cutaneous loss after a large avulsion is not covered early with a skin graft, the scar resulting from the closure of the wound by secondary intention may contract in the same manner as that following third degree burns. The scars which create these conditions are found chiefly around kinetic areas, such as the eyelids, mouth, neck, axillas and the extremities. The early covering of cutaneous defects is the ideal procedure. Linear lacerations on flexor surfaces such as the fingers may tend to develop contractures after healing occurs, owing to the straight line scar. This can often be obviated by the construction of one or more Z flaps at the time of primary closure, which produce a staggered instead of a straight scar. It is futile to attempt to prevent scar contractures by traction or splinting in either early or late stages unless provision is made to eliminate the offending scar. Temporary improvement might be obtained, but, owing to the fact that all scar tissue tends to contract, the extended parts will promptly revert to their original malposition as soon as the traction or splinting is removed. Scar contractures can be relieved by excision of all shortened fibrotic tissue, after which the parts are extended into normal anatomic position. The resulting cutaneous defects are then closed by the use of a Z plastic procedure or the utilization of a properly selected type of skin graft. Chronic ulcerations occurring in certain contractures should be repaired promptly for fear of secondary malignant changes.

Epithelization as Affected by Nickel Pectinate.—Hamilton treated wounds with a preparation of nickel pectinate containing 3 per cent pectin and 0.045 per cent nickel, either in aqueous solution or in tragacanth jelly. Merthiolate 1:5,000 was added to inhibit growth of fungi. After the toilet of the wound, the jelly was applied to a depth of 3 to 5 mm. Sixty-five wounds in 61 patients were dressed with nickel pectinate, and, as controls, 34 comparable wounds in 31 patients were treated with various bland agents, chiefly cod liver oil or ointment. Controlled experiments on wound healing were carried out on 6 rabbits. A control method was employed in 22 cases in which larger wounds nearly uniform throughout were divided into two comparable areas, the one dressed with the experimental agent, the other with the control. Contrary to the prevailing opinion, the author found that nickel pectinate does not promote wound healing but instead depresses granulation tissue proliferation. By virtue of its property of keeping down "proud flesh," nickel pectinate indirectly exerts a definite acceleration of epithelization. There was a 22 per cent reduction in healing time over such control agents as cod liver oil or foille. Hence it is contraindicated in the early stages of wound healing but is an ideal dressing where epithelization is sought. Nickel pectinate is mildly antiseptic. Compared with cod liver oil ointment it causes greater reduction in wound exudation and a reduction of the colony count. Nickel pectinate is hemostatic to a certain point in that it condenses and renders less vascular granulation tissue with which it comes in contact.

Tendon Transplants with Metal Nails.—Sutherland and Rowe list the following causes of the failure of tendons to work satisfactorily in their new positions: (1) fibrosis and fixation in the sheath during the long period of immobilization necessary for the bone attachment to become firm, (2) stretching of the healing area when sutured to soft tissue, with resultant loss of efficiency and muscle tone, and (3) stretching at the point of bone insertion of a tendon weakened by long immobilization. In a tendon transplanted and fixed to an area so that exercise and function can be begun early during the healing process, the formation of intrathecal adhesions and the loss of muscle tonus is avoided. Such a surgical transplantation of a tendon can be done simply by use of a metal nail fixation of the transplant to firm bone and early institution of function without external cast immobilization. This technic has been used successfully in lateral transposition of the anterior tibial tendon in talipes equinovarus and in replacement of the tibial tubercle with attached patellar tendon after operations on the knee joint. Reattachment of the medial epicondyle of the humerus and the medial malleolus of the tibia has been satisfactory in recent traumatic injuries. Reattachment of the trochanter of the femur after approach to the hip joint and distal transposition of the trochanter to increase abductor efficiency are also practical. Screws have not been as satisfactory as nails in this work.

Surgery, Gynecology and Obstetrics, Chicago

78:225-336 (March) 1944

Abdominal Wounds in Western Desert. W. H. Ogilvie.—p. 225.
Exposure of Recurrent Laryngeal Nerves in Thyroid Operations: Further Experiences. F. H. Lahey.—p. 239.
*Determination and Treatment of Pressure Cavities in Pulmonary Tuberculosis. A. M. Vineberg and W. E. Kunstler.—p. 245.
Further Observations on Surgery of Large Arteries. E. Holman. —p. 275.
Surgery of Congenital Anomalous Kidney. B. S. Abeshouse.—p. 288.
*Carcinoma of Rectum: Conclusions Based on Twelve Years' Experience with Combined Abdominoperineal Resection. F. A. Coller and H. K. Ransom.—p. 304.
Prolonged Intubation Suction and Deferred or Delayed Surgery in Treatment of Multiple Adhesive Obstructions of Small Intestine. K. S. Grimson.—p. 316.
Pectin Solutions in Treatment of Shock. K. A. Meyer, D. D. Kozoll, H. Popper and F. Steigmann.—p. 327.
Sulfanilamide Absorption Via Rectum and Vagina. G. L. Carrington, T. Rohrer, Elsie Jones and Phyllis Moore.—p. 333.

Pressure Cavities in Pulmonary Tuberculosis.—Vineberg and Kunstler report extensive studies on the problem of pressure cavities. They show that a large percentage of pulmonary tuberculous cavities are tension cavities and rarely close with thoracoplasty. Some residual cavities are tension cavities which are unaffected by thoracoplasty. The detection of tension cavities can be made only by needling of the cavity and recording of the intracavitary pressures. Transthoracic intracavitary suction drainage is recommended only for tension cavities. The authors describe a new technic and instruments for needling and draining tension cavities. In 150 instances cavities were needled and 27 cavities were drained without a single complication of hemorrhage, pleural empyema, spontaneous pneumothorax or air embolism. Intracavitary suction drainage will reduce large tension cavities to the size of a catheter; but to obtain permanent closure a partial thoracoplasty is essential. In giant positive pressure cavities anterior stage thoracoplasty precedes suction drainage and the latter is followed by posterior stage thoracoplasty. Negative pressure giant cavities close readily with thoracoplasty. By the use of a combination of transthoracic intracavitary suction drainage and thoracoplasty the ideal of collapse therapy is attained, namely a maximum collapse of diseased areas with a minimum of damage to normal lung parenchyma.

Carcinoma of Rectum: Combined Abdominoperineal Resection.—Coller and Ransom report conclusions based on twelve years' experience with combined abdominoperineal resection. The principles enunciated by Miles make abdominoperineal resection the only logical procedure. In 1936 the authors published the results obtained during a period of five years on 270 patients. The present report is concerned with the group of

patients with cancer of the rectum and rectosigmoid observed during the 6½ year period from Jan. 1, 1936 to July 1, 1942. During this time 571 patients were seen. In comparing the present series with the series previously reported the authors find definite, although not striking, improvement on several scores. The operability has increased as the result of earlier diagnosis and an extension of the limits of operability in cases in which the disease is more advanced. The latter has become possible because of standardization of the operative procedure and improvement in preoperative and postoperative management. The operative mortality has been lowered in spite of greater operability. Surgery remains the mainstay in the treatment of cancer of the rectum and rectosigmoid, and all methods other than radical removal of the diseased tissues may be expected to result in a high percentage of recurrences. In some patients unfit for radical procedures because of physical defects, operations less comprehensive in their scope continue to have a place. Surgical diathermy, x-rays and radium are to be regarded as palliative treatments. For most patients the one stage combined abdominoperineal resection is the procedure of choice. It seems improbable that great improvement in the future can be expected from more radical operations on patients with far advanced or incurable disease but that better results will come mostly from earlier diagnosis and earlier treatment and from a better understanding of and consequently the prevention and better management of such postoperative complications as pulmonary embolism, wound sepsis and complications arising in the genitourinary tract.

Virginia Medical Monthly, Richmond

71:113-172 (March) 1944

Medical College of Virginia and Medical Services in Virginia. J. P. Gray.—p. 114.
Map of Chimborazo General Hospital, C. S. A. as It Appeared July 6, 1862. S. Smith.—p. 118.
*Syndrome of Cervical Root Compression and Brachial Neuritis Following Lateral Herniation of Intervertebral Disk, with Comment on Central Midline Protrusions. J. L. Ulmer and J. M. Meredith.—p. 119.
Review of Recent Experimental Work on Peripheral Nerve Injuries. E. Fischer.—p. 125.
Case of Morvan's Type of Syringomyelia. N. Bloom and L. J. Moss.—p. 131.
Structure and Function of Mammalian Cerebral Cortex at Time of Birth. W. Riese.—p. 134.
Pelvic Pain: Its Anatomic and Surgical Aspects in Gynecology. R. H. Hoge.—p. 140.
Anencephaly with Antenatal Roentgen Diagnosis in Three Cases. W. C. Winn, H. H. Ware Jr. and F. B. Mandeville.—p. 145.
Chronic Osteomyelitis of Petrous Pyramid with Extensive Extradural Abscess and Spontaneous Decompression. P. N. Pastore and J. M. Meredith.—p. 149.
Effect of Food on Liver Fat of Animals Following Carbon Tetrachloride Poisoning. G. H. Dillard, H. Y. Spence and J. C. Forbes.—p. 154.
Gingival Hyperplasia Associated with Diphenyl-Hydantoin Therapy. C. F. Vallotton.—p. 159.

Cervical Root Compression and Brachial Neuritis Following Herniation of Intervertebral Disk.—Ulmer and Meredith present 3 cases of protruded cervical intervertebral disk and the associated neurologic symptoms. The first 2 cases are examples of nerve root compression producing unilateral brachial neuritis alone without cord involvement; the third case is that of a massive central protrusion producing complete paraplegia and subarachnoid block. In the lateral protrusions the exact location of the lesion in the cervical spine is determined more by clinical examination than by myelography. The clinician must avoid the error of overlooking lesions of the cervical spine (undiagnosed protruded intervertebral disk) as causative factors in the scalene neurocirculatory compression syndrome. Relief of such symptoms can be achieved only by effective treatment of the cervical spine lesion rather than by section of the scalene tendon. It is suggested that x-ray examination of the cervical spine be made in all cases of the scalene syndrome (brachial neuritis) in order to avoid such an error in diagnosis and treatment, just as films should always be made of the lumbosacral spine in every case of sciatica. Postoperative relief of symptoms should be excellent in all patients with cervical laterally placed protruded intervertebral disks (brachial neuritis alone) removed by means of a hemilaminectomy. When the disk compresses the cervical cord itself to the extent of producing a complete paraplegia, complete relief is scarcely to be expected.

War Medicine, Chicago

5:71-128 (Feb.) 1944

*Bacteria and "Toxic Factor" in Shock. J. C. Aub, A. M. Brues, R. Dubos, S. S. Kety, I. T. Nathanson, A. Pope and P. C. Zamecnik.—p. 71.
*Pathogenesis and Treatment of Shock Resulting from Crushing of Muscle. M. Prinzmetal, S. C. Freed and H. E. Kruger.—p. 74.
Experiences with Use of Thrombin With and Without Soluble Cellulose For Local Hemostasis. E. P. Cronkite, J. M. Deaver and E. L. Lozner.—p. 80.
Factors in Adjustment to Army Life: Plan for Preventive Psychiatry by Mass Psychotherapy. R. R. Cohen.—p. 83.
Medical History of World War II. A. S. MacNalty.—p. 92.
Mumps in Army Camps in 1943. A. C. McGuinness and E. A. Gall.—p. 95.
Early Form of Chronic Bronchitis in Panama. A. G. Cohen.—p. 105.
Occupational-Recreational Programs in Neuropsychiatric Sections of Army Station Hospitals. N. R. Shulack.—p. 109.

Bacteria and the "Toxic Factor" in Shock.—Aub and his collaborators investigated the possible elaboration of shock-producing toxic materials in anoxic muscle. The fluid exuding from dogs' muscles after their blood supply had been shut off for five hours was injected intravenously into other dogs. In 9 of 32 such experiments the fluid was toxic and produced manifestations of shock, usually fatal. In spite of aseptic surgical precautions these fluids were always contaminated. There are reasons for believing that the inconstant toxic factor in these fluids was bacterial in origin. Anoxic muscle in vivo is an excellent milieu for growth and toxin formation of organisms of the gas gangrene group, and these anaerobes either exist normally in dogs' muscles or else are introduced readily with traumatizing procedures. These potent toxins, in addition to their general effects on the circulation, could be a factor in the production of shock through local loss of fluid at the site of bacterial growth. Immunity to traumatic shock may depend on bacteriologic immunization. The beneficial effects of local cooling would also be compatible with a bacterial factor in the development of shock following traumatizing procedures. The vast majority of war wounds are contaminated with bacteria from the outset. Recent reports have indicated the presence of clostridiums and of other organisms in a high percentage of war wounds. Toxic products from bacteria have been shown to produce some of the manifestations of shock and can produce local loss of fluid even with adequate blood flow. It is therefore conceivable that even subclinical amounts of infection may result in the development of sufficient toxin to be of etiologic significance, acting either in addition to the well established factor of loss of vascular fluid or as a means of accentuating it.

Shock Resulting from Crushing of Muscle.—Prinzmetal and his associates show that shock can be produced in dogs by a muscle-crushing procedure with minimal loss of blood. The shock thus produced has been proved to be due to the systemic absorption of toxic substances. It has been shown that shock develops if local accumulation of fluid is prevented by plaster casts and, further, in animals without casts there is insufficient local loss of fluid to account for the death of the animals. It has been shown also that the shock is not due to the so-called neurogenic factor. The toxic shock-producing substances are produced in the crushed muscle, because débridement, if performed earlier than seventeen hours after trauma, prevents or ameliorates the shocklike state and if performed after twenty-four hours seems to be ineffective, and after animals have been saved by early débridement the reinsertion of the debrided crushed muscle into the opposite, control leg regularly produces shock. The toxic factor in crushed muscle is a direct result of bacteria, since in all experiments the crushed muscle contained large quantities of a wide variety of bacteria in spite of rigid surgical aseptic technic, and shock did not occur when the animals were treated with certain antibacterial agents. It appears that there are at least two types of shock due to injury to tissue: (*a*) an acute form occurring in a relatively few hours, which is mainly due to local accumulation or loss of fluid, and (*b*) a more chronic type, in which the shock is due to the systemic absorption of toxic substances, bacterial in origin, produced in the crushed muscle. Although plaster casts may be of value in the prevention of the acute type of shock, they are without effect for toxic shock, the treatment of which should include early débridement and the use of antibacterial agents.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Children's Diseases, Dorking, England

40:93-126 (Oct.-Dec.) 1943

Heart Block in Diphtheria. C. Neubauer.—p. 93.
Macro- and Microglandular Caseation in Primary Tuberculosis in Children. E. Engel.—p. 104.

Journal of Royal Army Medical Corps, London

82:1-50 (Jan.) 1944

*Chronic Melioidosis: Case Showing Bone and Pulmonary Lesions. J. H. Mayer and M. H. Finlayson.—p. 4.
Notes on an Improvised Nasal Oxygen Apparatus. W. A. Robinson.—p. 14.
Simple Artificial Respirator. P. W. Nathan.—p. 22.
Two Cases of Leptospirosis Icterohemorrhagica (Weil's Disease). A. Willcox.—p. 26.
*Vertebral and Sacroiliac Strain in Soldier. E. G. Fleming.—p. 30.
Importance of Otologic Examination in Head Injuries, Including Reference to Its Relation to Radiologic Investigation. R. B. Lumsden and J. A. C. Fleming.—p. 33.

Chronic Melioidosis.—Mayer and Finlayson report a case remarkable for its insidious onset, its great chronicity, its resemblance to pulmonary and articular tuberculosis and the multiplicity of lesions. The patient was a soldier who was 33 years of age when the illness started; it was originally diagnosed as spondylitis ankylopoietica and later as pulmonary and articular tuberculosis, but not until two and three-fourths years after the onset of the illness was the organism isolated which could be considered the specific etiologic factor. This organism was found to resemble Pfeifferella whitmori in almost every respect, but whereas all descriptions of P. whitmori state that it possesses no acid fast properties, the organism isolated in this case shows beads or granules which are resistant to decolorization by 2.5 per cent sulfuric acid or 10 per cent acetic acid acting for five minutes. It is of interest to speculate on the possible relationship of the acid fast properties of this strain to the chronicity of the lesions and their clinical resemblance to tuberculous lesions. However, the strain produces the acute granulomatous lesions in rodents which have been described as characteristic for P. whitmori. Melioidosis is a disease of rodents and men. The majority of cases previously recorded have occurred in natives. Of the chronic cases recorded, Grant and Barwell's (1943) is the only previous one reported in a European and was also unusually chronic. It is possible that Europeans possess greater resistance than Asiatics to infection with P. whitmori and that in them the condition may resemble the chronic granulomas. Cases of chronic melioidosis may occur in European troops campaigning in the areas in which the disease is endemic and may be mistaken for pulmonary or articular tuberculosis. The development of chronic granulomatous lesions in persons who have lived in the Far East should invite the possibility that the infection may be chronic melioidosis, and all possible steps should be taken to exclude this diagnosis before a definite and final diagnosis of tuberculous infection is made.

Vertebral and Sacroiliac Strain in Soldiers.—According to Fleming, lower lumbar and sacroiliac pain are common complaints in soldiers. The pain is found to have been initiated as the result of some considerable physical strain. The man may have been cranking a Diesel engine or lifting a heavy weight. In mild cases the usual procedure is to recommend a few good liniment rubs and hope that the counterirritation and physical stimulation may have the effect of relaxing a slight muscular spasm. If removal of the symptoms does not take place within a few days, the soldier is transferred to a hospital. Patients who give a history of strain may be placed in three classes. Those in which (1) the erector spinae has been strained with the possible rupture of some muscle fibers, (2) the lumbar spine has been rotated on the sacrum to such an extent that it has remained in a state of semisubluxation and (3) one or other of the ilia has become rotated on the sacrum posteriorly and has similarly remained in a state of semisubluxation. The cases which come under the second and third classes give a history of physical strain, limitation of spinal movement in one or all directions, tenderness and rigidity of the erector spinae on the affected side, and more pronounced tenderness immediately to one side or the other of the spinous process of the 5th lumbar vertebra or over the sacroiliac articulation on either side. In the case reported it was decided to resort to manipulation of the lower lumbar spine. After the manipulation the patient immediately pronounced himself fit. During the manipulation, with a synchronization of movement, three forces are applied. The patient's left shoulder is forced backward by the left hand, the lumbar spine is pulled forward by the fingers of the right hand and at the same time the operator's right knee presses down the patient's left thigh. These three forces, which must be made simultaneously, have the effect of rotating the lumbar spine on the sacrum in the desired direction. The author also mentions a case of sacroiliac strain which also was treated by manipulation. He thinks that the incidence of similar cases is probably much more common than is usually recognized.

Praxis, Bern

32:513-534 (July 15) 1943

Experiences and Late Results with Transurethral Electroresection of Prostate. H. Heusser and G. Reimann-Hunziker.—p. 513.
*Adrenal Preparation in Treatment of Gastroduodenal Ulcer. M. Demole and P. Guye.—p. 517.
*Primary Tuberculous Infection of Adults and Renal Tuberculosis. H. U. Gloor.—p. 519.

Adrenal Preparation in Treatment of Gastroduodenal Ulcer.—Demole and Guye used the synthetic adrenal hormone desoxycorticosterone in the treatment of about 40 patients with ulcer. They found that the pain disappears after the second or third injection, even in patients who had been resistant to ordinary treatment. The characteristic x-ray appearance is completely altered in fifteen or more days. Stools become negative for blood, but the gastric chemism seems little influenced. Only 1 of the patients failed to respond to the action of desoxycorticosterone. There are no serious contraindications. Variations in blood pressure do not exceed physiologic limits. Edema, which develops in some patients, disappears when the medication is discontinued. The late results of desoxycorticosterone therapy are not as favorable as the immediate effects, particularly in the chronic cases. There was only 1 permanent result among 11 patients with old ulcers. Of 10 patients who had the ulcer for less than a year, 8 were permanently cured. In general a relapse follows after from four to ten months in more than half of the patients. Desoxycorticosterone provides a valuable therapeutic proof in differentiating suspected roentgenograms. If the ulcer niche disappears under the influence of desoxycorticosterone the lesion is benign, but if it persists in spite of the absence of subjective symptoms malignant transformation must be suspected. Desoxycorticosterone probably corrects a glandular deficiency. The therapy is particularly indicated for hypotensive, asthenic or pigmented patients to counteract the slight adrenal insufficiency.

Primary Tuberculous Infection of Adults and Renal Tuberculosis.—Gloor cites statistical evidence to the effect that late primary infection has increased and that a large percentage of tuberculous infections during the postpuberal period are really primary infections. The character of the postprimary hematogenic dissemination differs in adults from that in children. In adults foci are produced particularly in the bones, joints and the genitourinary system. The formation of extrapulmonary foci may escape detection for years. Intrarenal foci particularly may remain unrecognized for eight to ten years until they perforate into the discharging urinary passages. The author raises the question whether it might not be advisable to resort during every hematogenic dissemination to the administration of antituberculosis remedies such as sodium gold thiosulfate and trimethyldioxyoxotritan. The treatment with these substances should not be postponed until a tuberculous bone fistula or a specific renal focus has been demonstrated but should begin immediately after a postprimary exudative pleurisy, because these pleurisies constitute the first manifestation of hematogenic dissemination frequently followed by tuberculosis of bones or kidneys. Even patients who have recovered from pleurisy should be subjected for years to periodic control examinations. Careful chemical and microscopic examination of the urine are indispensable.

Book Notices

Office Treatment of the Nose, Throat and Ear. By Abraham R. Hollender, M.Sc., M.D., F.A.C.S., Associate Professor of Laryngology, Rhinology and Otology, University of Illinois College of Medicine, Chicago. Cloth. Price, $5. Pp. 480, with illustrations. Chicago: Year Book Publishers, Inc., 1943.

The author has undertaken to write a complete textbook on the office treatment of diseases of the ear, nose and throat. This is a large field, and he who attempts to do it well must be possessed of much knowledge, discrimination and judgment. There is the disputable, there is the new which has not yet been thoroughly tested and there is the old which has yet not been completely discarded. The author has finally to take into account his own prejudices. To say after careful perusal that this is merely a good book would be to do it less than justice. The task has been unusually well done. Here are nearly five hundred closely packed pages, written in a clear and engaging style and clarified by numerous interesting and in large part original illustrations. The author proceeds from a beginning entitled "A General Survey" in which he evaluates office treatment in this field to discussions on immunization, endocrinotherapy, nutritional management, pharmacotherapy, physical therapy, office surgery and radio therapy to go on systematically to the diseases of the external nose, the paranasal sinuses, the mouth, the pharynx, the larynx and the ear. He ends with a chapter on the nervous disorders treating primarily of facial paralysis and the neuralgias of this area. It has long been felt that a great need existed for an authoritative statement devoted to office management of diseases of the ear, nose and throat. This volume should fill that need for a long time to come.

Health and Hygiene: A Comprehensive Study of Disease Prevention and Health Promotion. By Lloyd Ackerman. Cloth. Price, $5. Pp. 895, with 59 illustrations. Lancaster, Pa.: Jaques Cattell Press, 1943.

Dr. Ackerman has departed from tradition and has written a book for the intelligent layman. The text is prepared for a mature reader in normal health who wishes to maintain his health during the productive period of his life. The text is also intended for the college student who is being prepared for an effective life. Thus emphasis has been placed on the subjects with which the normal individual is concerned and over which he has some degree of control. It is noteworthy that about 20 per cent of the book is devoted to mental hygiene: the nature of nervous activity, kinds of attitudes, conflicts and modes of adjustment, and the prevention of mental disorders and the promotion of health. Here, as elsewhere, stress is laid on the importance of objective attitudes.

It is this objective attitude which the author himself has maintained throughout the text. He has avoided pedagogy, preferring to use qualifying adverbs rather than final statements. This encourages the reader to be open minded, in accord with the present organismal concept of medicine, which recognizes that health is concerned with the whole organism and its total environment throughout life at the four interrelated levels of activity: physical, mental, social and spiritual.

As the historical approach is the most objective, a relatively large number of pages are devoted to the evolution of hygiene in the light of cultural development, hygienic trends and general methods of evaluating health concepts. Included in this part is basic information on vital statistics and a classification of the causes of health and disease. This prepares the reader for an objective approach to the material which follows, which is a detailed study of the more basic factors in their relation to health and disease. Approximately 20 per cent of the book (the same amount as devoted to mental hygiene) is devoted to material on infection, resistance, hypersensitiveness and disease transmission. Nutrition and matters relating to sexual phenomena each occupy about 10 per cent of the total book, and the remaining 30 per cent is divided between oral hygiene, poisons, accidents and injuries and the effect of heat, light and sound on health.

The author does not discuss community organization in promotion of the public health. Every educated man should be familiar with community facilities and responsibilities in health promotion. He should know whether or not his town or state has a good progressive health department and should assume leadership in the community affairs relating to this field. The reviewer believes that the book would be stronger and more effective if a chapter was included which discussed administration of public health and the relationship of the organized voluntary and official agencies in promotion of the health of the individual.

Dr. Ackerman has skilfully and successfully coordinated authoritative sources, so that the reader has an over-all picture of the complex subject of health and hygiene.

The Canned Food Reference Manual: A Publication of the American Can Company Research Department. Roger H. Lueck, Director. Second edition. Cloth. Pp. 552, with illustrations. New York: American Can Company, 1943.

The second edition of this most useful book has been generally expanded to contain additional nutritional information and data commensurate with the strides made in this field since the publication of the first edition. The book is intended as a manual to provide factual information on foods, and it does so without limitation to canned foods as the title would imply. The forepart of the volume describes production of the modern metal food container and the processing of the food which goes into it. There follows a discussion of human nutrition touching briefly on all the salient points of present day knowledge of the human nutrition. Particular attention is given the vitamins, with sections on their chemical composition, methods of estimation in foods, effects of their lack in the body and recommended daily allowances. All the nutritional information is concisely presented and the commendable attitude taken that these facts represent the present status of knowledge, which is undoubtedly incomplete as yet. Being a canned food manual, the book understandably extols the merits of canned foods and the contribution they make to the diet. Comparison between commercially canned foods and those home cooked shows the advantages of commercial methods in certain respects. Many of the often asked questions pertaining to the use of canned foods are answered here, and in addition suggestions for the most effective use of these foods are offered. The fact that most canned foods need no further cooking, only heating, and that the liquid on canned peas for example may contain actually more vitamins than the solid food within the can is well worth knowing. In the latter portion of the book are found extensive tables which give the nutritional values of canned foods as well as of many fresh foods. Particularly useful are the data on the vitamin and mineral content of a great variety of foods. Other tables showing the purine content as well as the oxalic, malic and citric acid contents of foods are of interest to those concerned with selecting foods for special purposes. Altogether this book serves as a quite adequate source of reference for information on nutritional facts and food composition.

Synopsis of Materia Medica, Toxicology, and Pharmacology for Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D. Third edition. Fabrikoid. Price, $6.50. Pp. 759, with 40 illustrations. St. Louis: C. V. Mosby Company, 1944.

The author of this book is lamentably failing to keep his material up to date despite the fact that he has had the unusual opportunity of offering a new edition every two years. Furthermore, in writing of matters in fields in which he obviously has no intimate knowledge, as all textbook authors must, he seems oftentimes not to have taken the trouble to acquaint himself with even the rudiments of the subject under consideration. Since the necessity to incorporate the new things in chemotherapy is stated in the preface to be one of the reasons for the early appearance of the present edition, the author of this review believes it not unfair to list as his sole specific criticism of the book some of the omissions, misstatements and misunderstandings found in this department. 1. There are forty-four pages on antiseptics and disinfectants in which all the changes are wrung on the old familiar agents, but there is not a single mention of the local use in wounds of sulfanilamide powder, powdered proflavine, propamidine, penicillin or gramicidin. To be sure, the local employment of some of these agents is discussed elsewhere, but failure to rebuild the consideration of the antiseptics around these new drugs and methods marks the section as obsolete. 2. There are a couple of pages on intestinal disinfectants, among which sulfaguanidine and sulfasuxidine are listed, with the reader referred to another chapter for further discussion; but there is also hardly the amazing statement "Apparently the best way to kill off the flora of the intestine

is to replace it by a different flora, such as that furnished by the administration of Bacillus bulgaricus and Bacillus acidophilis"—this at a time when there is already abundant evidence that succinylsulfathiazole (sulfasuxidine) can destroy the flora so thoroughly that even vitamin K synthesis is stopped! 3. Among the amebacidal agents two of the older iodoxyquinolines, vioform and chiniofon, are mentioned but there is not a word about diodoquin, which has made a deserved place for itself in recent years. 4. There is an obvious failure to appreciate the important place which mapharsen has acquired and the reasons for the same. 5. Account is not given of the new "quick" treatment methods in syphilis despite the important implications of these methods for the whole of chemotherapy. 6. On page 542 there is a fallacious definition of the Herxheimer reaction. 7. One of the "most important uses of antimony compounds" is alleged to be in trypanosomiasis, an error which is compounded by complete failure to mention the diamidines, which for several years have been improving their position in the therapy of this disease. Incidentally, in this same discussion the statement is made that kala-azar occurs in the United States. 8. Each of the sentences in the following paragraph on penicillin (p. 664) is either fallacious or fails to make sense: "Absorption from the duodenum is rapid following enteral administration and slow following oral and rectal doses. The amount excreted in the urine following oral, intraduodenal and rectal administration is small. In the presence of renal failure penicillin is slowly excreted, resulting in high blood concentration after intravenous injection. Human saliva, bile and succus entericus do not inactivate bile, but gastric juice destroys it rapidly, apparently due to its acidity." The absurdity in the last sentence is doubtless due merely to misprint, as is probably true of the statement on the same page "It is activated by oxidation and by evaporation at 40° to 50° C., in acid and alkaline solutions." 9. The following unsupportable statement is made regarding quinine (p. 688): "Regardless of the mechanism of its action, quinine cures the acute symptoms by depressing multiplication of plasmodia in the body and stimulating some of the parasites to change to the sexual form which cannot cause the disease in man." 10. It is said that the old fashioned eight weeks treatment of malaria is recommended by the highest authorities and that such treatment usually results in permanent cure—both of which statements are unfounded. Short course therapy is later mentioned but without intimation that its importance is appreciated. There is also tucked in about here the following sentence (p. 690), which betrays a superficial knowledge of the literature of antimalarial agents: "Occasionally a resistant strain is encountered; this condition is usually cleared up by intravenous injection of quinine." 11. The following statement regarding plasmochin (pamaquine naphthoate) is untrue (p. 692): "It therefore is an adjuvant of great value in endemic areas where it is desirable to prevent infection of mosquitoes." And the following, on the same drug, reveals a very confused understanding of the subject (p. 692): "It does not kill sporozoites and is relatively ineffective on the trophozoites or growing forms, especially of the Plasmodium vivax of tertian and subtertian malaria." 12. Regarding atabrine (quinacrine hydrochloride), whose superiority to quinine has been so well demonstrated in the present war that it has long been the preferred drug in all branches of our armed forces, the following statement is made (p. 693): "There seems to be much greater toxicity with this compound than with quinine, and its use is indicated only under unusual epidemic conditions."

This book cannot be recommended.

A Text-Book of Pathology. Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minn. Fifth edition. Cloth. Price, $9.50. Pp. 862, with 452 illustrations. Philadelphia: Lea & Febiger, 1944.

New developments in diagnosis and treatment of disease have greatly modified considerations of pathology. Thus these textbooks, like others, must be constantly revised in order to keep up to date. In this new edition of Bell's excellent work are found discussions of shock, vitamin deficiencies, blast injuries and various infectious diseases in the field of war medicine. Many new illustrations have been added and some old ones eliminated. The various sections of the volume are divided among the authors, but careful planning has made the work a succinct and useful textbook.

A Textbook of Pathology: General and Special for the Use of Students and Practitioners. By J. Martin Beattie, M.A., M.D., D.Sc., and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P., Director of the Pathological Department, West End Hospital for Nervous Diseases, London. With the collaboration of A. Murray Drennan, M.D., F.R.C.P., F.R.S.E., Professor of Pathology in the University of Edinburgh, and John O. Oliver, M.D., B.S., M.R.C.S., Assistant Pathologist, St. Thomas's Hospital, London. Fourth edition. Cloth. Price, 84s. Pp. 1,368, with 827 illustrations. London: William Heinemann, Ltd., 1943.

To the student, pathology is the first introduction to the effects of disease, and he approaches it eagerly. He finds much of it dull because of the myriads of new terms and the drab descriptions of actually fascinating conditions. This tendency to submerge a subject in a mass of words is too frequently encountered in modern medical writing. One needs only to recall the simple words in which Parkinson described palsy or Paget described breast cancer to realize that clinical and pathologic manifestations of the ills of mankind can be couched in English which is kin to the best of prose. From a purely literary point of view there are features in this book which are highly commendable. The language is choice, and the origin of terms peculiar to pathology is indicated. Thus when the novice learns that the word infarction means to cram he has a better understanding of why Virchow chose this word.

There is a tendency, which seems better defined in English publications, to retain outmoded and meaningless terms. Nowhere is this better illustrated than in the classification of tumors. The classification used in this textbook possesses definite advantages in that it is simple and based on the original embryonic layers. The term rind-cell carcinoma is used for all tumors arising from lining cells whether they are of ectodermal or of endodermal origin. This is an oversimplification, no doubt, and lumps together tumors which hardly belong in the same category. The actual description of the tumors with the variation in cell and content is replete with somewhat outmoded terms and is based on morphologic variations which deserve less emphasis than they have received in the past. The surgeon of today is demanding a more dynamic approach to the classification of tumors. He wants to know What kind of a tumor? Is it radiosensitive? Is it malignant? How malignant? And, if possible, he would like this information in the operating room.

The reappearance of this book, which represents teaching at the University of Edinburgh, is a tribute to the tenacity and vitality of the Edinburgh faculty of medicine. This edition has been in proof plates for three years, but revisions are modern and there are few omissions. The attitude of the authors is denoted by a prefatory statement which recognizes the trend by which pathology is becoming a science of the living; and the implication is that it is the pathologist's duty to recognize tissue changes and their significance as early as possible.

Hundert Jahre Schweizerischer Apotheker-Verein (Centenaire de la Société suisse de pharmacie), 1843-1943. Cloth. Pp. 603, with illustrations. Zurich: Schweizerischer Apotheker-Verein, 1943.

This book is dedicated to the Swiss Pharmaceutical Association on the occasion of its centennial, Sept. 25-26, 1943. Swiss pharmacists have contributed many scientific papers in special journals and many will remember the excellent work done by the Swiss Pharmaceutical Association for the Swiss pharmacopeia. The association has favored always the scientific education of pharmaceutical students, has attempted by means of funds to activate pharmaceutical investigations, was the founder of the "Pharmaceutica Acta Helvetiae," the special Swiss pharmaceutical publication dedicated to science only, and has carried on laboratory testing of drugs. The volume contains thirty scientific articles by pharmacists who are practicing pharmacy or who are employees of scientific institutes, with industry or with the government. The contents appear, depending on the author, in German, French or Italian and concern such subjects as the preparation of dry extract of ipecacuanha, the melting and congelation of butter of cacao, the determination of santonin and phenolphthalein in vermifuges, the use of the histometric method in the examination of some natural drugs, the determination of total alkaloid contents of cinchona bark and contents of quinine, hydroquinine and cinchonidine, and other topics covering varied subjects such as vitamins, rhubarb and the sulfonamides.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF WHIPWORM INFECTION

To the Editor:—Four months ago I examined a girl aged 3½ years who had been brought to me because of the frequent occurrence of sties, restlessness and maldisposition. The child had typhoid at the age of 2 and scarlet fever at 3. Physical examination was negative. After repeated examinations, the ova of Trichocephalus trichiurus were found. Various vermifuges were tried and repeated; the best results, gaging by the decrease in eosinophil count, were obtained with hexylresorcinol. On Jan. 21, 1944 the eosinophilia, one week after treatment, was 9 per cent. Treatment was discontinued and on February 10 the eosinophilic had risen to 37 per cent. Can you suggest any additional therapeutic measures?

William S. Woods, M.D., Blairsville, Pa.

ANSWER.—In order to understand the difficulty of securing satisfactory elimination of the whipworm, Trichocephalus trichiurus, from the human bowel, it is well to realize that the delicate anterior end of this worm is basted into the mucosal layer of the cecum or appendix. This allows the worm to maintain a tenacious hold on the bowel wall. Experience has demonstrated that caprokol (hexylresorcinol crystoids) as administered in ascariasis is only partially effective against this worm. Much better results are obtained with tetrachlorethylene and oil of chenopodium in the proportion of approximately 9:1, but special preparation must be made for the administration of this or any other anthelmintic for use against the whipworm.

In an instance such as that cited, the following regimen is recommended: The patient should be kept on a light diet for two days preceding treatment. The night before specific medication, purgation with sodium sulfate should be carried out and, following good elimination, there should be a high enema of isotonic solution of sodium chloride to clean out the residue of viscous feces which remain attached to the worms. The following morning the patient should remain in bed and, without breakfast, should be given 0.6 cc. (10 minims) of tetrachlorethylene and 0.12 cc. (2 minims) of oil of chenopodium, which should have been thoroughly mixed. This preparation can be safely given on a teaspoon with sugar. Two hours after administration there should be a follow-up sodium sulfate purge and following bowel movements after treatment a light noon meal may be taken.

The prescription described does not guarantee complete elimination of the worms but, if carefully carried out, will in the average case produce satisfactory clinical results.

SUNBURN THROUGH WINDOWS AND PLASTICS

To the Editor:—Is it possible for a man, driving an automobile on a sunny day, to acquire a sunburn of his left forearm from driving along for several hours with his left bare forearm resting on the window ledge of the door and the window closed, the sun shining through the door window? Does the plastic material used as canopy windows in airplanes transmit enough ultraviolet radiation to cause sunburn of the unshielded pilot after an exposure of several hours with the canopy closed? In other words, how much ultraviolet is permitted to penetrate the glass in automobiles and the plastic windows of planes?

Captain, M. C., A. U. S.

ANSWER.—The laminated glass windows of automobiles are opaque to ultraviolet of wavelengths shorter than about 3,200 angstroms; hence no sunburn is to be expected. If the plastic material used in airplane canopies does not contain a special absorbent of ultraviolet, sunburn may occur on the untanned skin.

WETTING AGENTS ORALLY

To the Editor:—Please let me know whether there are any nontoxic wetting agents available which would be suitable when mixed with powders for oral administration. I would appreciate references.

Julius L. Rogoff, M.D., New York.

ANSWER.—Conceivably the phenomena associated with artificial tissue wetting constitute a deviation from the usual physiologic state, so that theoretically there may be no "nontoxic wetting agents." Although the publications related to tissue action from wetting agents are few, at present in several places work of this character is in process. Some of this work has been a failure not because of injurious properties but because the wetting agents themselves are destroyed within the alimentary tract. Wetting agents susceptible to the action of either acids or alkalis are not effective following oral intake. The three wetting agents at this time most frequently associated with alimentary tract application are Aerosol OT, Triton NE and Lauryl Sulfonates. Since the quantity of any wetting agent used in any application is so trivial, it is unlikely that any systemic involvement might derive from the great majority of wetting agents reasonably applied as an adjuvant to therapy. The action of wetting agents on skin surfaces is sufficiently related, so that the items cited include:

Lane, C. G., and Blank, I. H.: Cutaneous Detergents, THE JOURNAL, March 7, 1942, p. 804.

Benaglia, A. E. Robinson, E. J.; Utley, E., and Cleverdon, M. A.: The Chronic Toxicity of Aerosol-OT, *J. Indust. Hyg. & Toxicol.* **25:** 175 (May) 1943.

Smyth, H. F., Jr.; Seaton, J., and Fischer, L.: Some Pharmacological Properties of "Tergitol" Penetrants, *ibid.* **23:** 478 (Dec.) 1941.

Lorenz, E.; Shimkin, M. B., and Stewart, H. L.: Preparations of Dispersions of Carcinogenic Hydrocarbons and Hormones with the Aid of Dioctyl Ester of Sodium Sulfosuccinate (Aerosol O. T.), *J. Nat. Cancer Inst.* **1:** 355 (Dec.) 1940.

DERMATITIS FROM LIME USED IN PACKING HOUSE

To the Editor:—The local packing house uses a hot solution of "hydrated lime" (90 per cent calcium and magnesium carbonate) for dipping and apparently bleaching the carcasses of hogs immediately after killing. Employees who cut up the carcass after this procedure develop a nonweeping but itching red dermatitis with gradual thickening and cracking of the skin. If they stay away from work for two or three days the acute dermatitis subsides. I am wondering whether any of the doctors associated with Chicago's packing houses have had any experience in preventing this form of dermatitis. Apparently the procedure is a common one in the packing business.

M.D., Iowa.

ANSWER.—The large packing houses have long since discontinued the use of chemicals in removing the hair from the carcasses of hogs. The carcasses are sent through boiling water and then through machines which remove the hair from the carcasses without the necessity of workmen coming into contact with the hogs during this process. Probably the packing house using this chemical procedure is new in the business and should adopt modern methods.

EXPOSURE TO LUCITE

To the Editor: What would be the effect, if any, of lucite dust on the general health, and especially on the lungs of a person working under conditions in which large quantities of this dust are present in the air.

M.D., New York.

ANSWER.—Animal experiments carried out years ago failed to show any injury to the lungs or any definite pathologic effect from lucite dust. Long continued clinical observations on workers in a plant manufacturing lucite also has not revealed any deleterious effects from exposure.

POLIOMYELITIS AND LATE MUSCLE ATROPHY

To the Editor:—In The Journal of March 4, 1944, page 676, there was a query about the cause of atrophy of muscles seemingly normal for fourteen years in a patient after an attack of poliomyelitis. The answer was "With normal recovery from poliomyelitis such atrophy would not occur after a period of fourteen years." The occurrence of muscular atrophy in patients who have recovered from poliomyelitis is not uncommon. Wilson, in his Neurology, page 240, says: "The late development of progressive muscular atrophy on the basis of injury to the cord by poliomyelitis in childhood has been recognized since the time of Charcot. The amyotrophy may, or may not, start in groups already damaged by the infantile disease. Some 37 cases of the kind were collected from the literature by Potts in 1903, and a number more have since been observed. In rare examples the type subsequently appearing conforms rather to a myopathic than to a myelopathic class (Ingham). Of several personal cases one is that of a man of 35 who suffered from poliomyelitis of the left shoulder and arm at the age of 3 and whose right thigh and leg began to waste at the age of 30." Oppenheim, in his textbook on nervous diseases (7th German edition, p. 287) says: "Persons suffering from poliomyelitis are, in some way, even in later life, still endangered; they have and retain some predisposition for atrophic paralyses. Thus it has been found sometimes that, on the basis of poliomyelitis, in later life a progressive muscular atrophy or a chronic anterior poliomyelitis had developed." Oppenheim quotes fifteen authors on this subject. Dimitri devoted a special clinical and anatomic study to these late progressive amyotrophies in cases of poliomyelitis (*Semana méd.* 2: 1002 [Oct. 13] 1932). Recently I saw a woman aged 21 who at the age of 3½ suffered a severe poliomyelitis affecting both legs and the right arm. The left arm had never in any way been involved. Two months ago she noticed a weakness of the left hand and shows now on the left hand and arm all the symptoms of progressive muscular atrophy.

Robert Wartenberg, M.D., San Francisco.